GOVERNMENT OF PAKISTAN

72

# SIX YEAR
# DEVELOPMENT PROGRAMME
## OF
# PAKISTAN

JULY 1951 To JUNE 1957

Ministry of Economic Affairs
KARACHI

14421

338.91
P17s

# Six-Year Development Programme of Pakistan

# July 1951 to June 1957

NOTE

The total cost of the plan has since been raised to Rs. 3,600 millions to provide for a sum of Rs. 200 millions on account of expension of social services.

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# SIX-YEAR DEVELOPMENT PROGRAMME OF PAKISTAN, JULY 1951 TO JUNE 1957.

## DEVELOPMENT PROGRAMME

In Pakistan, the Development Board has so far examined 212 schemes sponsored by various Provincial Governments and Central Ministers and approved of 111 schemes of the total value of Rs. 1,125,700,000. This work does not, however, represent and attempt to plan development nationally. Even a large number of unrelated projects does not make up a National Plan No attempt has so far been made to prepare an integrated plan of "consumption, production, investment, trade and income distribution in accordance with social objectives set by bodies representative of the nation." The statement of industrial policy has been made and as a result of certain conferences, targets have been set for various industries. But man does not live on bread alone and a national plan has to take into account not only the production and distribution of goods, but also social services and civilising activities. The standard of living of a people is a composite whole, comprising material, social and cultural amenities. A proper equilibrium amongst these factors probably determines the fullness of life of a people. For the formulation of a national plan, it is necessary to state the norms for the attainment of which the nation must strive. These norms will constitute the measure of the standard of living which, within a specified time, it is desired to achieve.

### *Social Objective*

While almost every one talks these days of standard of living, few perhaps would be able to define the ideal which is attainable within a forseeable future, even under the most favourable conditions. It is easy enough to aver that the social objective of country should be to ensure a full life for all its citizens, but a full life itself is impossible to define as its perquisites vary for every race and every clime. The removal of poverty and want is often a politician's promise which eludes definition, for poverty and want are both relative terms, with a different connotation in every set of circumstances. The Indian National Planning Committee decided that "the doubling of the present standard of living amongst the people of India, within a prescribed time-limit, say ten years," was one of the aims of planning. A more rational way of viewing the problems would, perhaps, be to assess the development that can be made on pre-determined lines within a specified period, and, at the end of this period, to review the change brought by that development in the economic life of the country and to begin work on the next phase of the plan.

### *The need for a Development programme*

A greater part of the area now comprising East Pakistan was included in the India—Burma—China theatre of war and suffered not only the damage caused by the enemy, but even to a larger degree devastation arising from the scorched-earth policy of the defenders of the land. It is a well-known fact that the great famine which cost Bengal several million lives and the health of an entire generation was to a large extent caused by the scorched-earth policy of the Allied armies. When the war ended, the Allied armies marched away seemingly unconscious of the havoc that had been wrought in that land by the fact of their occupation. While the economic rehabilitation of Europe became a major concern of the United States, the rehabilitation of East Pakistan appears to have interested no one—neither the United States nor the United Kingdom

India was an important supplier of raw products needed for the war and these came almost entirely from the area now constituting Pakistan. The prices at which these commodities were supplied were controlled ruthlessly and bore no relationship to their value. The producers of these commodities were deprived of the only chance which came to them in a quarter of a century to build up reserves for the coming years, when the prices of agricultural products would fall. Nor was this all. In India, most of the war expenditure was financed by "created" money and as inflation increased, the value of the small savings of the cultivator diminished. This was a forced contribution to war, and the burden fell the heaviest on the producers of basic commodities, especially as the

prices of basic commodities were controlled severely. There was no increase in the value of these commodities even as prices enhanced, because they rose in direct proportion to inflation. On the other hand, the industrialised countries enjoyed the full advantage of scarcity of goods which has characterised the post-war period. It is difficult to assess in monetary terms the suffering imposed on the producers of raw products in Pakistan, but it is evident that it must be very large indeed.

No part of the Indian sub-Continent suffered so intensely from the direct and indirect effect of war as the provinces which now constitute Pakistan. These provinces were essentially agricultural. Eastern Pakistan was a part of the Eastern Front and suffered from the scorched-earth policy as welll as the economic effects of war. Its railway system was reduced to a scrap by the intensive use and lack of repairs during the period of army occupation. West Pakistan was the granary of the sub-Continent and the land of the warrior classes. The financial reserves which its people should have built up were diminished by the fixation of very low prices of food commodities requiried for the Allied armies. The value of their reserves was further diminished by inflation, and by the fact of the prices of manufactured goods rising much more than the prices of agricultural commodities. In the Western provinces also, the transport system was reduced to a very low state, because of intensive use for the carriage of foodgrains and troops, as the recruitment to the army of the combatant personnel was largely confined to this area.

Soon after war came Independence. The periods preceding Independence and that following it make up one of the most gruesome chapters in human history. Widespread communal riots, arson, massacre and unspeakably sadistic cruelties which occurred during these two years eclipse the ravages of Changiz Khan's hordes into insignificance. The two peoples who had lived together for several centuries, without being welded into a nation, decided to part and to seek their own ways of life separately. The entire economy of the sub-Continent was changed and the development plans which had been talked of for the five years of war were relegated to the background. Pakistan set out on its Future without its share of assets, without any developed resources—in fact little but the grim prospect of a long and hard struggle ahead.

The need for development in Pakistan is so patent that one almost assumes it as a self-evident truth. In any agricultural country the measure of advancement must be the production of agricultural commodities per acre. In Pakistan it is one of the lowest as the following table will show :—

TABLE I.—YIELDS OF CROPS

| *Item* | *Present yield per acre* | | *Yield per acre in other countries.* | |
|---|---|---|---|---|
| | *West Pakistan* | *East Pakistan.* | | |
| | lbs. | lbs. | | lbs. |
| (1) Wheat .. | 850 | .. | Germany (1941) | 2,200 |
| | | | Italy (1941) .. | 1,350 |
| (2) Rice .. | .. | 890 | China .. | 1,400 |
| | | | United States .. | 1,450 |
| | | | Egypt | 2,000 |
| | | | Japan .. | 2,300 |
| | | | Italy .. | 3,000 |
| (3) Tobacco .. | 962 | .. | United States .. | 1,180 |
| | | | Canada .. | 1,133 |
| | | | Argentina .. | 841 |
| (4) Cotton .. | 166 (1948-49) | .. | Egypt .. | 475 |
| | 205 (highest (1942-43) | .. | China .. | 142 |
| | | | United States .. | 234 |
| | | | U. S. S. R. .. | 333 |
| (5) Jute .. | .. | 1,240 | Experts' objective is | 1,640 |

The following table further illustrates the economic backwardness of Pakistan :—

## TABLE II.—STEEL CONSUMPTION

| *Country* | *Per capita consumption (in lbs.)* | *Year* |
|---|---|---|
| Pakistan .. .. .. | 3 | 1949 |
| India .. .. .. | 8 | 1946 |
| Ceylon .. .. .. | 11 | 1936-39 average |
| Iran .. .. .. | 14 | 1936-39 average |
| Turkey .. .. .. | 19 | 1936-39 average |
| Spain .. .. .. | 40 | 1948 |
| Brazil .. .. .. | 46 | 1946 |
| Argentina .. .. .. | 164 | 1935-39 average |
| Germany .. .. .. | 209 | 1948 |
| Great Britain .. .. | 594 | 1948 |
| United States .. .. | 855 | 1946 |

## TABLE III.—FOOD AND CLOTH CONSUMPTION

| *Item* | *Consumption per capita standard (1949)* *East Pakistan* | *West Pakistan* | *Minimum standard of consumption per capita recommended by experts* |
|---|---|---|---|
| (1) Cereals .. .. | 330 lbs. p.h. p.a. | 368 lbs. p.h. p.a. | 365 lbs. ph. p.a. |
| (2) Pulses inc. Gram .. | 0.8 ozs. p.h. p.d. | On the whole | 3 ozs. p.h. p.d. |
| (3) Vegetables .. | 1.58 ozs. p.h. p.d. | On the whole | 6 ozs. p.h. p.d. |
| (4) Fats and oils .. | .12 ozs. p.h. p.d. | .54 ozs. p.h. p.d. (or .3 ozs. p.h. p.d. On the whole) | 1.5 ozs. p.h. p.d. of all kinds of fats and oils |
| (5) Sugar cane .. | On the whole | 30 lbs. p.h. p.a. | United Kingdom, 112 lbs. p.h. p.a. United States, 103 lbs. p.h. p.a. Japan, 29 lbs. p.h. p.a. Australia, 114 lbs. p.h. p.a |
| (6) Fruits .. .. | On the whole | 2 ozs. p.h. p.d. | 3 ozs. p.h. p.d. |
| (7) Fish .. .. | .080 ozs. p.h. p.d. | .094 ozs. p.h. p.d. | Fish, meat and eggs at 2.5 ozs. p.h. p.d. For fish alone say 1 oz. p.h. p.d. |
| (8) Milk .. .. | 1.2 ozs. p.h. p.d. | 3.5 ozs. p.h. p.d. (with lassi, curd, &c., works out at 8 ozs. p.h. p.d.) | 8 ozs. p.h. p.d. of pure milk |
| (9) Cloth .. .. | on the whole 9 yds. *per capita* | | 18 yds. *per capita*. In United States, consumption 46 yds. *per capita*. |

## TABLE IV.—RAILWAYS

| *Country* | *Total mileage* | *Miles of lines per 100 sq. miles of area* | *Population per mile of line* |
|---|---|---|---|
| Pakistan .. .. | 6,982 | 1.9 | 11,863 |
| United States .. | 238,829 | 6.9 | 573 |
| United Kingdon .. | 20,080 | 22.5 | 2,233 |
| Belgium .. .. | 6,470 | 54.9 | 1,250 |
| France .. .. | 26,437 | 12.4 | 1,585 |
| Italy .. .. | 14,220 | 11.8 | 3,023 |
| India (undivided) .. | 43,128 | 2.3 | 8,181 |

## TABLE V.—POWER

| *Country* | *Available total K. W. capacity.* | *Capacity in K. W. per 1,000* |
|---|---|---|
| Pakistan .. .. .. .. | 69,074 | 1.02 |
| Japan .. .. .. .. | 8,539,000 | 109.00 |
| India .. .. .. .. | 1,362,000 | 4.10 |
| China .. .. .. .. | 1,332,000 | 2.88 |
| Indonesia .. .. .. .. | 350,000 | 3.07 |
| Malaya .. .. .. .. | 120,000 | 20.68 |
| Philippines .. .. .. .. | 108,000 | 5.53 |
| Hong Kong .. .. .. | 72,000 | 41.14 |
| Indo-China .. .. .. | 46,000 | 1.70 |
| Burma .. .. .. .. | 30,000 | 1.76 |
| Ceylon .. .. .. .. | 21,000 | 3.04 |
| Siam .. .. .. .. | 16,000 | 0.94 |

## TABLE VI.—EDUCATION

| *Subject.* | *Country.* | *Post-war proportion of university students to entire population.* |
|---|---|---|
| University education .. | Pakistan (presumed as in undivided India) .. | 1 to 2,206 |
| | Germany .. .. | 1 to 690 |
| | United Kingdom .. | 1 to 837 |
| | United States .. | 1 to 225 |
| Bismil .. .. | U. S. S. R. .. .. | 1 to 300 |

## TABLE VII.—HEALTH

| *Country.* | *Ratio to population in case of—* *Doctors.* | *Nurses.* | *Midwives.* | *Pharmaceutists* |
|---|---|---|---|---|
| Pakistan .. | .. 1 to 6,000 | 1 to 43,000 | 1 to 60,000 | 1 to 4 million |
| United Kingdom | .. 1 to 1,000 (1946) | 1 to 300 (1946) | 1 to 618 | 1 to 3 doctors |
| United States | .. 1 to 750 | .. | .. | .. |

In undivided India it was computed that while the income *per capia* was Rs. 64, the cost of the bare necessities of life, which comprised the following items, was Rs. 71 :—

Food *per capita* per day : Cereals, 16 ozs. ; Pulses, 3 ozs. ; Sugar, 2 ozs. ; Vegetables, 6 ozs. ; Fruits, 2 ozs. ; Fats and Oils, 1.5 ozs. ; Whole Milk, 8 ozs.

Cloth : 30 yards *per capita* per year.

Housing : 100 square feet per person.

Health : One dispensary per village, general hospital and maternity clinics in towns, speciansed institutions for treatment of T.B., &c., and proper sanitary and water supply arrangements.

Education : Every person of 10 years' age should be able to read and write, and also take intelligent interest in private and social life.

This was at prices which ranged in 1939. In Pakistan, the cost of almost the same standard of life at prices as on 1st July, 1950, would be Rs. 211 and the income *per capita* (very roughly calculated) Rs. 215. The Tatta Plan took as its ideal the doubling of standard of living in a period of 10-15 years at a cost of Rs. 10,000 crores (100,000 million). The National Planning Committee, too, set before itself the objective of doubling the standard of living in 10 years.

Though the social objectives of Pakistan have not been defined, it is certain that they are higher than a mere provision of a standard of living very near the minimum requirements of human life, it is, however, realised that viewing the matter realistically, and expenditure equal to 1/5th to 1/4th of what the Tatta Plan contemplated, is beyond the conceivable capacity of Pakistan. Fortunately the country is self-sufficient (and even a little surplus) in food. She produces 85 per cent. of the world's jute and a large quantity of cotton, hides and skins, wool, &c. There is a sufficient potential of hydro-electric but withal her economy is entirely agricultural, with the consequent low standard of living. At present there is no jute mill in Pakistan despite the fact that she grows 85 per cent. of world's jute. Most of her raw cotton is exported as there are only 277,000 spindles working which can consume about 33,000 tons out of a total production of 200,000 tons of cotton. For want of tanneries, the entire production of hides and skins is exported. Out of a potential of 5 million kW., the present hydro-electric generation is only 9,600 kW. The production of coal is only 324,027 tons per year as the mines are not mechanised and are still worked by archaic methods.

It will be observed that there is poverty—dire, oppressive poverty—in Pakistan in the midst of a possible plentitude, and one's mind naturally turns to schemes of economic development of the country.

There is a very great deal to be done in every sphere of national life, social services, industries, transport, agriculture and the rest. The Government of Pakistan have, however, decided to follow the good principle that national efforts towards social and economic development must be applied first to fundamentals.

The first phase of the development programme of Pakistan is proposed to be confined generally to "basic development," *i.e.*, the development of essential industries and services, *e.g.*, irrigation, mechanisation and modernisation of agriculture. The six years' programme of development which has been formulated by Pakistan and which is now being forwarded to the Commonwealth Consultative Commitee, in accordance with the decision taken in this behalf at Sydney, envisages a total expenditure of Rs. 2,400 million. It is not a spectacular programme and at the end of the period of its realisation there will apparently be but little visible change in the standard of living or the pattern of economy, but in fact the foundation of a sound national economy of the future will have been laid. The estimated expenditure of Rs. 2,400 million will be distributed over various sections of development, as shown in the following table :—

| | *Rs. million* |
|---|---|
| (1) Power ... ... ... ... ... | 450 |
| (2) Transport (Railways) ... ... ... ... | 200 |
| (3) Ports ... ... ... ... ... | 140 |
| (4) Roads ... ... ... ... ... | 100 |
| (5) Telecommunication ... ... ... | 90 |
| (6) Mines and Surveys ... ... ... ... | 30 |
| (7) Agriculture and Irrigation ... ... ... | 820 |
| (8) Industry ... ... ... ... | 480 |
| (9) Water Supply ... ... ... ... | 20 |
| (10) Technical Training Polytechnics ... | 70 |

It is expected that the implementation of the six years' development plan will have the following effects :—

(*a*) Increase in power by 256,000 kW.
(*b*) Increase in area under cultivation by 6 million acres.
(*c*) Increase in production of food crops by 6,855,000 tons.
(*d*) Increase in production of non-food crops by 55,000,000 tons.
(*e*) Rehabilitation of Railway :

(i) New engines : 170
(ii) New wagons : 1,950
(iii) New carriages : 310
(iv) Machinery for workshops : to provide necessary facilities for repairs and overhauls on E.B.R.
Replacement of sleepers : 3 million

(*f*) Development of Chittagong Port : Handling capacity of the port will rise to 3,960,000 tons per annum
(*g*) Geological Survey : A complete geological survey would have been completed.
(*h*) Mechanisation and modernisation of coal mines : About thirty mines in all would be mechanised.
(*i*) Telecommunications : Number of telephones would increase from 17,526 to 47,800 ; telephone exchanges from 111 to 223 telegraph offices from 2,638 to 2,838 ; teleprinters from 4 to 15 &c.
(*j*) Increase in water supply of Karachi by 25 million gallons a day.
(*k*) Production of textiles up to 1,350 million yards or 900,000 bales
(*l*) Production of paper up to 30,000 tons per annum.
(*m*) Production of jute manufactures up to 130,000 tons per annum.

In terms of standard of living, there will be an increase of 30 per cent., but this does not take into account the effect on the economy of the country of the development of small-scale and cottage industries (which will continue to be looked after by the Provincial Governments out of their revenue resources). In a country with predominantly agricultural economy, and that, too, of a rather primative type, it is essential that the masses of ryots should be provided with secondary avocations to supplement the paltry income derived from agriculture. The precise economic effect of this expenditure cannot, however, be assessed. Nor is it possible to evaluate financially the effects of the basic development which will take place as a result of the Plan. It is essentially a preparatory plan—a plan to enable the country to develop industrially in future.

*Power*

The first place in the development plan has been given to generation of power, as it is realised that without an adequate supply of power, the process of industrialisation must indeed be very slow. It has been estimated that Pakistan's power potential is between 5 and 6 million kW., and the first Pakistan Industries Conference, which met in December 1947, recommended a target production of 500,000 kW in the coming five years. Subsquently, Sir Henry Howard (a Consulting Engineer of repute) surved the power resources and immediate demands for power in Pakistan and estimated that up to 1955 the generation of 200,000 kW. would be necessary. It has been decided, in consultation with the Central Engineering Authority and Messrs. Merza, Rendel, Vatten (Pakistan) to undertake a countrywide transmission of electric energy from the projected generating stations by means of suiable electric grids. These will eventually join up in two grids, one in the East and the other in the West Pakistan and supply power at the very doorsteps not only of the industrialists but also of other consumers throughout Pakistan. At present the total installed capacity of the different power stations in Pakistan (excluding small sets which certain units of industries are using for their own purpose) is 69.074 kW. distributed as follows :—

| | *kW.* |
|---|---|
| Diesel ... ... ... ... | 24,450 |
| Steam ... ... ... ... | 32,868 |
| Gas ... ... ... ... | 56 |
| Hydel ... ... ... | 10,700 |

The major portion of this power is generated by old and inefficient diesel and steam stations, which have been in continous operation for several years, without repair and overhaul, due to ever-increasing demand for electricity and non-availability of spare parts during the war. The additional load, the demand for which has already been registered with the appropriate authorities, already exceeds the estimates given by Sir Henry Howard, namely, 200,000 kW. Taking all factors into consideration, the Government of Pakistan have decided to proceed in the matter with extreme circumspection and to restric the target for the next five years to the estimates prepared by Sir Henry Howard. The following hydel projects have either been taken in hand already or sufficient progress has been made in planning to lead to the expectation that they will be taken up in the very near future :—

(1) Extension of Malakand Hydro-electric Station : Additional production 10,000 kW
(2) Rasul Hydro-electric Project : installed capacity : 22,000 kW.
(3) Dargai Hydro-electric Station : 15,000 kW.
(4) Mianwali Hydro-electric Project : 30,000 kW.
(5) Warsak Hydro-electric Project : 60,000 to 100,000 kW.
(6) Karnafuli Hydro-electric Project : 40,000 kW.

*Transport (Railways)*

In has come to pass that the railways stuated in the territory now comprising Pakistan have had to bear the brunt both of the Allied struggle against Japan on the Eastern Frontier of the Indian sub-Continent and the condition of anarchy and chaos which followed Independence, in some provinces of India. On the Eastern Front, the railway system now called the East Bengal Railway, besides contributing, in 1942, a large number of metre-guage locomotives and wagons for the use of Allied forces in Iraq, had to carry almost the entire military traffic caused by the Allied activity in that region, with the result that the system almost succumbed to that pressure, for which it was neither planned nor prepared. By the time victory was won the entire East Bengal Railway had been worn down to a very low condition. Unfortunately, by the terms of Partition, Pakistan had to take over the Railway at its book value, notwithstanding its actual condition.

In West Pakistan the North-Western Railway had similarly borne its share of the effects of war. The railway set apart a considerable portion of its workshop —at that time perhaps the most efficient workshop on the sub-continent—for the use of the Army, for manufacturing war materials. This railway had also to carry large military traffic, serving as it did (and does) an area inhabited by material races which have, through the ages, supplied the largest portion of the army personnel on the sub-continent. This area being surplus in food, the railway had to carry food for he rest of India and for the armies spread over the sub-con-

tinent. When peace came and the rehabilitation or railways was planned, orders were placed for the replacement of engines and rolling-stock for these railways also, but before they (the engines and the rolling-stock) arrived, the country was partitioned and the railways in Pakistan were denied their share.

Immediately after Independence,, anarchy and massacre raged in East Punjab (India) and the North-Western Railway had to carry the entire refugee traffic in both the directions. The refugees taken to India added to the losses of the Railway by causing wanton damage to carriages.

The Provision made in the development plan for the rehabilitation of railways comprise the following items :—

| | |
|---|---|
| New engines ... ... ... ... | 170 |
| New wagons ... ... ... ... | 1,950 |
| New carriages ... ... ... ... | 310 |
| Replacement of sleepers ... ... | 3,000,000 |

Also certain additional machinery for workshops.

While many railway links have been surveyed and it is recognised that many of them are of extremely urgent necessity, a sum of Rs. 25 million only has been provided in the programme for new constructions.

*Ports*

A provision has been made in the development programme for development of ports to the extent of Rs. 140 million, out of which nearly Rs. 130 million will be expended on Chittagong. Throughout the entire period of British rule in India, every effort was expended on the development of Calcutta. The teeming millions of East Pakistan toiled and sweated for brave subsistence and their towns and dwellings were allowed to decay, as the only purpose for which the fertile plains of East Bengal were considered to be meant was to produce jute for the jute mills of Calcutta or for being exported from Calcutta to countries of the world. Chittagong, the Port of East Bengal, was neglected and it was only during the war that under the stress of Japanese threate, it came into certain prominence. At the time of the establishment of Pakistan. Chittagong had a jetty frontage of about 2,300 ft., comprising four berths capable of taking in four ships. The jetties were old, the equipment was worn out and the maintenance work had been completely neglected, while the Allied armies on the Eastern front occupied the port. The condition of the port on the whole was unspeakable.

The handling capacity of Chittagong was between 5 and 6 million tons per annum in August 1947. Some work has been done on it, at a cost of little over Rs. 10 million, but a very great deal still remains to be done. It is to be remembered that the port of Chittagong alone serves East Pakistan, which has a population of nearly 45 million and which produces nearly 85 per cent. of World's jute, which is entirely exported. The Consulting Engineers, Messrs. Merz, Rendel. Vatten (Pakistan), have now completed their plans of development, and during the next five years it is proposed to spend a little over Rs. 130 million.

The balance of Rs. 10 million is required for a dry dock at Karachi.

*National Highways*

Pakistan has at present 63,259 miles of roads, out of which nearly 50,000 miles are unmetalled. It is invitable that an all-round development of the country should necessitate the opening up of new communication, especially as it is expected that there will be a very large increase in agricultural production in Pakistan, which will have to be moved to markets. The various Provincial Governments have submitted to the Central development authorities schemes for the construction of a little over 9,000 miles of new roads at a cost of Rs. 161,642,600. Most of the expenditure will be internal. Taking into consideration the necessity of giving proper balance to the whole plan, the Government of Pakistan are of the opinion that expenditure on roads should be restricted to Rs. 100 million during the next six years and a provision for that amount has been made in the Plan.

*Industries*

It has been emphasised in some of the preceding chapters that the first six years' plan of development embodies projects relating principally to basic needs of the country. While it is essential, from a long-item point of view, to concentrate

every efforts on fundamentals, *e.g.*, Power, Transport, Communications, &c., it also appears necessary that the immediate needs of the people should not be disregarded entirely. The provision of sufficient cloth is one of these elementary necessities of human life. In undivided India, various planning missions which engaged themselves on the task of preparing development plans for the sub-continent, estimated that the average requirement of cloth *per capita* was 30 yards per annum. In Pakistan, at present the production of cloth amounts to 500 million yards, including the handloom production out of the imported yarn. In 1949, 200 million yard of foreign cloth were imported, thus giving an average consumption of nine yards *per capita*. This is obviously inadequate. The first Pakistan Industries Conference reported that during the next few years we should set for ourselves a target of 18 yards *per capita*, or 1,500 million yards in all, for the whole country. To make up the entire shortage even with the reduced requirement of 18 yards per head. Pakistan requires about 40 textile units of 25,000 spindles each. Out of this 16 have already been ordered, or are under construction. Taking account of expenditure in other sections of the Plan, the Government of Pakistan have reached the conclusion that it will be possible for 24 units to be set up during the next six years. At the end of the period, the productive capacity of Pakistan will be about 1,350 million yards, thus leaving a shortage of 150 million yards. This will have the effect of reducing our external expenditure by Rs. 300 million. With the rise in the standard of living, people will no doubt require larger quantities and better qualities of cloth, for which Pakistan will have to look to foreign markets.

*Jute*

Pakistan produces 85 per cent. of the world's jute, but depends on foreign countries for the supply of even its own requirements of jute manufactures. As Pakistan produces bulk of the world's raw jute it should be easier for her to develop a jute manufacturing industry to meet its own demands as well as such portion of World's demand as is not already covered by the existing industry, or which may develop because of the inability of the existing industry to meet the growing demand on account of increased production of food-grains in the world or on account of diminution in the production of the existing old and decaying mills. It is necessary to manufacture jute goods under the most favourable circumstances, so that they may be produced economically and be able to complete with substitutes. The threat of substitutes has to be met effectively, as it is a threat to the entire economy of Pakistan. The Government of Pakistan has, therefore, decided that jute industry must be considered as one of the basic industries of Pakistan, and has set a target of 15,000 loomage for the next 10 years. In the development programme for six years, provision has been made for five jute mills at a cost of Rs. 110 million.

*Paper*

Along with cotton textiles and jute, the manufacture of paper is ragarded as a basic requirement of Pakistan. There is a very large supply of bamboo in the Chittagong Hill Tracts of East Pakistan and most of it has been exported so far. Lately, the Government of Pakistan engaged the services of two foreign consultants, both of whom reported very favourably on the feasibility of establishing a paper mill in Chittagong. At present, Pakistan imports nearly 40,000 tons of paper a year, but with increased literacy and political consciousness, an increase in consumption is inevitable. For the time being, however, it is planned to set up a mill of the capacity of 100 tons, finished paper per day and the expenditure on this mill during the period of the plan is estimated at Rs. 40 million.

*Agriculture*

As is well known, the economy of Pakistan is predominantly agricultural and out of the population of 80 million, at least 80 per cent. subsist on agriculture. In under-develop countries, particularly where archaic methods and paucity of fertilisers have exhausted both the soil and the tiller, the introduction of modern methods and mechanical equipments is an urgent necessity ; if the standard of living of the people is to be raised and they are to be convinced that something is being done to ameliorate the drudgery of existence. Considering the prevalent illiteracy and poverty in the country it is not to be expected that the small farmer will be able to turn to mechanical ways of farming on his own account. He has to be

educated and subsidised either directly or indirectly. The Government of Pakistan has, therefore, decided to : —

(i) establish a central agricultural engineering organisation and workshops to popularise the use of modern machinery ;
(ii) provide earth-moving machinery :
(iii) provide fertiliser, batteries of tractors and essential spare parts ;
(iv) establish modern workshop capable of overhauling tractors ;
(v) establish a net-work of seed farms ;
(vi) subsidies the sale of fertilisers and ultimately to set up a fertiliser factory.

The pressure on land at present is so severe and the need for rehabilitating the several million refugees who have immigrated in to Pakistan is so urgent that several vast tracts of waste land have to be brought under cultivation. For this purpose, very large irrigation works are necessary and accordingly two such projects have been taken in hand, and a third is in the offing. These two projects, *viz.*, Thal and Kotri, will command additional 4.8 million acres. The irrigation works alone will cost Rs. 270 million and colonisation projects Rs. 209 millions. The thriod project is, in fact, a multi-purpose scheme intended essentially to generate electricity, but it will, incidentally, bring under irrigation 93,000 acres of land. The cost of this project has been included under "Power." Another scheme of colonisation is the one known as "Abbasia Colonisation Scheme" and is intended to bring under irrigation 260,000 acres of land and is estimated to cost Rs. 18 million.

Besides irrigation and mechanisation of agriculture the problem of modernising agriculture in Pakistan involves the use of improved varieties of seeds and fertilisers and crop planning. A sum of Rs. 100 million has been provided for seed farms. As regards fertilisers, we import, at present about 20,000 tons per year at an average c.i.f. value of Rs. 200. The import price is so high that the use of fertilisers is necessarily very restricted. The Government of Pakistan has, therefore, planned to set up a fertiliser factory. capable of producing 80,000 tons per year at a cost of nearly Rs. 50 million. A provision has been made in the development programme for the importation of fertilisers of the value of Rs 92.5 million during the next six years 1951-57. It is, however, projected to establish a fertiliser plan for which separate provision has been made and when it is in operation the import of fertilisers will be reduced.

Another irrigation problem which confronts Pakistan is that of waterlogging. It has been estimated that over 2.3 million acres of arable land are now lying waterlogged in West Pakistan and about 40,000 acres of land get waterlogged yearly. Various measures have been suggested by experts from time to time to meet this meance and quite recently Dr. Wilhelm of the United States Department of Reclamation paid a visit to Pakistan to study the question. It has been decided that the best method of removing waterlogging is by construction of tube-wells in the are, by which means water table can be lowered. A special hydro-electric project, called "Rasul" is under construction for this purpose, and as soon as it is ready, a chain of tube-wells will be constructed. On the whole, a provision of Rs. 124 million has been made in the Developments Plan for the purpose of removing water-logging in West Pakistan.

Provision has also been made in the plan for the development of fisheries and improvement of livestock. Pakistan is known to have substantial resources of fisheries, but very little has been done so far to develop them. Recently, an F.A.O. expert, Dr. G. L. Kesteven, visited Pakistan, and it is hoped that measures will be taken in the near future to develop fisheries.

As regards livestock, it may be observed that cattle are not only a source of malk and meat but also the principle source of power for agricultural purposes. Even with partial mechanisation of agriculture in Pakistan, cattle will continue to play a major part in agriculture. A sum of Rs. 200 million has been provided in the Plan for improving cattle wealth of the country and for developing dairy farms.

The overall effect of the measures of irrigation, mechanisation and improved methods of agriculture briefly will be :—

(*a*) To bring under cultivation 6 million acres of land ;
(*b*) To increase the total production as follows :—

| | *Tons.* |
|---|---|
| (i) Foodgrains ... ... ... | 2,550,000 |
| (ii) Oil Seeds ... ... ... | 695,000 |
| (iii) Commercial Crops ... ... | 2,807,400 |
| (iv) Fodder ... ... ... | 48,000,000 |

Making allowance for larger consumption due to increase in population and better standard of living, it is estimated that the exportable surplus at the end of 6 years will be of the value of Rs. 1,445·5 million, as at prices on 1st July, 1950.

It will be observed that in our agricultural programme for the next six years a good deal of emphasis has been laid on oil seeds, pulses and vegetables. This has been done in order to improve the nutritive value of food of the common man. The Plan, in this half, is based on the objective of proving 2,600 calories per man per day, as recommended by Dr. W. R. Aykroyd, Director, Nutrition Division, F. A. O.

## TELECOMMUNICATIONS.

The capacity of the existing telephone system is extremely inadequate for the requirements of the country, and at almost every station a large number of applications for new telephone connections is pending and the demand grow daily. The density of telephones per 100 population in Pakistan is 02 as against.—

| | | | |
|---|---|---|---|
| United States .. | 24.02 | United Kingdom .. .. | 9.03 |
| Canada .. .. | 17.04 | Australia .. .. | 11.09 |
| Argentina .. .. | 4.00 | New Zealand .. .. | 16.05 |
| Denmark .. .. | 14.98 | Norway .. .. | 12.00 |
| Sweden .. .. | 21.02 | France .. .. | 5.20 |
| Switzerland .. .. | 16.03 | | |

The present number of trunk circuits between the important exchanges is very small and cannot deal efficiently with the existing traffic. Only "delayed" service is given on all sections in the country and the available channels have not been able to introduce "on demand" service on any route. The traffic throughout the country is increasing progressively and will continue to increase with the development in trade and improvement in living standards.

The existing telegraph systems in the country are mostly More and Baudet. To a small extent teleprinters are in use Baudet is now almost an obsolete system and Morse is slow and wasteful.

The present number of offices in the country where telegraph services exist is 854. FFor a country with 80 million population, this number is too small. So apart from modernisation it is necessary to extend the telegram facilities to rural areas in the interior.

The Government of Pakistan have decided to extend and modernise telecommunication services in the country at a cost of Rs. 90 million. The following measures are proposed to be taken :—

(*a*) *New Exchanges.*—To instal new telephone exchanges at 55 places in the country during 6 years.

(*b*) To extend 66 existing telephone exchanges.

(*c*) To extend trunk circuits.

(*d*) To extend telegraph facilities by opening 200 additional offices during the next 6 years. Additional over-head lines will be erected from the nearest existing telegraph offices suitables for working Morse.

(*e*) In comparatively large offices where telegraph traffi is fairly heavy, the existing Baudet and Morse systems are proposed to be replaced by teleprinters. It is expected that 100 teleprinters will be installed during the period of the Plan.

(*f*) With the extension of telegraph service and increase in the telegraph traffic, suitably to increase the number of existing telegraph circuits on main routes.

(*g*) To instal facsimile services between Pakistan and Overseas and within Pakistan. During the next 5 years the service will be made available at Karachi, Lahore and Dacca. The equipment at Karachi and at Dacca will be suitable for operation on radio telephone circuits. The Karachi terminal will also work on overseas circuits. The equipment at Lahore will be suitable for operation on landline carrier channels.

(*h*) *Training and Testing Centre.*—A training centre has been established in the Punjab where techanical staff of all categories in the Posts and Telegraph Department receive theoretical and practical training. It is proposed to establish a testing laboratory at the centre where operators and equipment will be tested and standardised.

A provision of Rs. 90 million (for the development of telecommunication services in Pakistan) has been made in the Plan.

*Coal Mines and Geological Survey*

The annual requirement of coal of Pakistan, at present is estimated to be 1,680,000 tons, out of which local production amounts only to 324,027 tons. Messrs. Powell Duffryn (Technical Services) Ltd., of London who were engaged recently to advise the Government of Pakistan have reported that by a mechanisation of these mines the production will rise to 835,000 tons per year.

A geological survey of Pakistan has not been made so far, and there are reasonable indications of the existence of considerable quantities of several minerals. In the Colombo session of the Standing Committee of the Commonwealth Consultative Committee, Pakistan asked for a geological survey party out of the Commonwealth Technical Assistance Scheme, and it is hoped that the Commonwealth countries will be able to provide such a party in the near future. It is essential, for the economic life of Pakistan, to have a geological survey made at a very early date, and to take in hand an extension of mining operations.

A total provision of Rs. 30 million has been made in the Plan for the mechanisation of mines and an extension of geological operations.

*Technical Experience*

While it is true that Pakistan, like other countries in South Asia, is short in technical personnel, it is expected that sufficient skilled staff will be available for the projects which comprise the Six Years' Development Programme. There may be difficulties as far as very senior appointments are concerned, but it is hoped that the foreign manufacturers on whom orders will be placed for machinery will be able to send out experts, and also to undertake the training of Pakistan nationals in the relative work. It may be observed in this connection that only few of the projects included in the Plan are new to Pakistan. Even in the matter of paper and jute manufacture, which are entirely new ventures in Pakistan, there are available, at present, a number of Pakistanis who have held important posts in similar enterprises in India. In regard to agriculture and irrigation projects, it is generally admitted that Pakistan techanicians are very well qualified in the work. Even if there is an overall shortage, it is hoped that it will be possible to import experts from the Commonwealth countries, and in the last extreme from foreign countries.

*Education, Health and Housing*

A provision of Rs. 70 million has been made in the Plan for the establishment of technical institutes, research laboratories, &c. (Rs. 40 million) and grant of scholarships for training aboard in scientifi and techanical subjects (Rs. 30 million). Considering the needs of a new country like Pakistan, the provision is indeed very small, but it expected that Pakistan will get considerable techanical assistance out of the Commonwealth Techanical Assistant Scheme. Besides, the provincial Governments have fairly large programmes of education. The following table shows the extraordinary expenditure which is estimated to be incurred on Education during the period of the plan—in addition to the ordinary annual expenditure :—

| | *Estimated Total Capital Cost (1951-57)* | *Estimated Recurring Expenditure per annum after 1956-57* |
|---|---|---|
| | Rs. | Rs. |
| 1. Total .. .. .. | 96,189,600 | 166,624,260 |
| 2. From Public Funds at a basis of 50 per cent. .. .. | 48,094,800 | 83,312,130 |
| 3. Government Expenditure .. | 48,094,800 | 83,312,130 |

Similarly, the Provincial and the Central Governments have large development programmes for extending Health Services. As this expenditure will be met out of the ordinary budgets of the Governments concerned, no provision has been made for this in the six years' Plan. The extraordinary development expenditure is estimated at Rs. 39,750,000 Capital (1951-57) and Rs. 35,440,800 recurring per annum after 1956-57.

The estimates for major development works include, as a rule, provision for houses for labourers and supervisory staff. Besides this, both the Central and

the Provincial Governments have under consideration rather large programmes for the construction of houses for refugees, and, in fact, the impositon of certain special taxes for this purposes is under the consideration of the Central Government. It is not possible, at this stage, to indicate the amount which will be expended for this purposes, but it expected that it will be very considerable.

*Administration*

The Government of Pakistan have decided that the most expeditious and effective method of implementing the six years' Plan is to establish an autonomous administrative machinery to be charged specifically with the functions of carrying out the plan. They have therefore decided to set up an Economic Council which will be responsible directly to the Cabinet. Subject to the general overall control of Government, this Council will be autonomous in every way and will be empowered to make appointments of consultants, experts and officials and determine the method and the agency by which work is to be done. The details of the administrative machinery are being worked out at present.

*Finance*

The estimated expenditure on the entire Plan during the years 1951-57 is Rs. 2, 400 million, out of which it is hoped that private enterprise (both local and foreign, will be able to invest Rs 400 million, thus leaving Rs. 2,000 million to be financed by Government. After a very careful consideration, the Government of Pakistan have come to the conclusion that they will be able to finance the entire internal expenditure of Rs. 1,000 million, and assistance is therefore needed to the extent of Rs. 1,000 million to cover external expenditure. It is obvious that unless the external expenditure can be financed and equipment and machinery imported into the country the plan cannot be taken in hand. There is exceedingly little that can be achieved with internal expenditure alone because for every project a certain amount of machinery is necessary, to obtain which foreign currencies are needed.

The financial effect of the Plan, as far as can be foreseen at present, will be a net increase of our external credit by Rs. 800 million per year. It is evident that it will be extremely easy for Pakistan to service foreign loans even if the Commonwealth assistance to be given for the implementation of the six years' Plan were to take the form of loans and credits. The increase in the revenue of Government is estimated to be Rs. 100 million. The increase in the standard of living is estimated to be 30 per cent.

The Government of Pakistan are convinced that time is the most important factor in the present situation which confronts not only Pakistan but all the countries in South and South-East Asia. For many centuries religion has been the only solace which has reconciled the peoples of the lands to a life of famine, pestilence and disease, but even faith is now receding from the hearts of the people and the desperation of disbelief accentuates the awareness of their poverty and makes them yearn for any panacea that would cure their many ills– or at least bring them relief of oblivion. In such times quacks and knaves do flourish, and such periods of human history are preludes to revolutions.

## TABLE A. DEVELOPMENT COMMODITIES

| (1) | 1949 (2) | 1950 (3) | 1951-52 (4) | 1951-57 (6 years' total) (5) |
|---|---|---|---|---|
| *Semi-finished and finished steel:* | | | | |
| Consumption | 110,000 tons (includes 10,000 tons inventory and war surplus) | | | |
| Production | 33,000 tons | | | |
| Imports (tonnage) | 67,000 tons | | | |
| (value £) | (Source: Steel Mission Report) | | | |
| *Non-ferrous metals:* | | | | |
| Imports (tonnage) | | | | Consumption : 2,133, 900 tons |
| (value £) | | | | Production 684,000 tons |
| | | | | Imports (tonnage) : 1,489,900 tons |
| | | | | (Value Rs. 47 Crores or £48 million) |
| *Pig-iron* | | | | |
| Consumption | 3,200 tons | | | This is also included under "Steel and non - ferrous metals" above |
| Production | Nil | | | |
| Imports (tonnage) | 3,200 tons | | | |
| (value £) | | | | |

# TABLE A.—DEVELOPMENT COMMODITIES *Continued.*

| (1) | 1949 (2) | 1950 (3) | 1950-51 (4) | 1951-57 (6 years' total) (5) |
|---|---|---|---|---|
| *Timber (Softwood)*: | | | | |
| Imports (tonnage) .. | £1·5 million (this includes woodware (source: D. S and D.) but excludes sleepers, which are of hardwood | | | |
| (value £) .. | | | | |
| *Cement*: | | | | 1·2 m. normal requirements<br>1·1 m. development plan requirements |
| Consumption .. .. | 200,000 tons | .. .. .. .. | | Total 2·3 million tons |
| Production .. .. | 320,000 tons | .. .. .. .. | | 770,000 p.a. (total capacity) |
| Imports (tonnage) .. | Nil | .. .. .. .. | | Nil |
| (value £) .. | (Industry targets (p. 14) | | | |
| *Fertiliser (each of Phosphate (P2O5) content), Potash, Nitrogen*: | | | | |
| Consumption .. .. | 20,000 tons | .. .. .. .. | | 458,000 tons |
| Production .. .. | Nil | .. .. .. .. | | 200,000 tons (during 1954-55 to 1956-57) |
| Imports (tonnage) .. | 20,000 tons | .. .. .. .. | | 258,000 tons |
| (value £) .. | | | | (Value £5·2 million) |
| *Machinery and equipment and vehicles*: | | | | |
| Imports (value in £) .. | £17 million (includes) (Total) | .. .. | | 2,000 (numbers) |
| Agricultural tractors .. | | .. .. | | Engines for<br>Fishing boats: 200 (No.)<br>Launches: 12 (No.)<br>Power sprayers: £70,000 |
| Other agricultural machinery | | .. .. .. | | Total imports of agricultural machinery and plant: £20 million |
| Earth-moving equipment | | .. .. .. | | 170 (£0·6 million |
| Locomotives .. .. | | .. .. .. | | 1950 (£1·2 million) |
| Railway wagons .. | | .. .. .. | | 310 (£3 million) |
| Carriages .. .. | | .. .. .. | | £3·4 million |
| Other railway equipment | | .. .. .. | | £94 million |
| Lorries .. .. | Vehicles (£6·4 million (seaborne) (D.C.I.G.S.) | .. .. | | (c. £6·4 per year) |
| Buses .. .. | | .. .. | | |
| Port and harbour equipment | | .. .. | | |
| Electrical machinery | | .. .. .. | | |
| Electrical apparatus .. | | .. .. .. | | £2 million |
| Mining machinery .. | | .. .. .. | | £28 million |
| Industrial machinery .. | | .. .. | | |
| Assembly components | | .. .. .. | | |
| Spare parts .. .. | | .. .. .. | | |
| *Coal and oil*: | *Coal*: | | | |
| Consumption .. .. | 1,470,832 tons | .. .. .. | | 17,000,000 tons |
| Production .. .. | 324,027 tons | .. .. .. | | 3,800,000 tons |
| Imports (tonnage) .. | 1,152,705 tons | .. .. .. | | 14,200,000 tons |
| (value £) | | | | (Value £72·6 million) |
| | *Oil*: | | | |
| Consumption .. .. | 916,000 tons | .. .. .. | | 8,100,000 tons |
| Production .. .. | 134,600 tons | .. .. .. | | 1,030,000 tons |
| Imports (tonnage) .. | 781,400 tons | .. .. .. | | 7,100,000 tons |
| (value £) .. | (£3·5 million) | .. .. .. | | (value £32 million) |
| | | | | Total for 1951-57 £250 million or £43 million p.a. This includes all requirements, normal as well as developmental and excludes consumer goods, etc., which constitute bulk of our present day imports. |

# TABLE B.—COST OF DEVELOPMENT BY PUBLIC AUTHORITIES

## (Figures in million of Rupees)

| Subject | 1949-50 (Revised estimates) Internal | 1949-50 (Revised estimates) External | 1950-51 (Estimates) Internal | 1950-51 (Estimates) External | 1951-52 Internal | 1951-52 External | 1951-57 Internal | 1951-57 External | 1951-57 Total |
|---|---|---|---|---|---|---|---|---|---|
| 1. Agriculture and irrigation | 94 | | 106 | | 173·9 | 6·25 | 195 | | 820 |
| 2. Transport and communications:— | | | | | | | | | |
| Railways | | | | | 54·0 | 2·1 | 180 | | 200 |
| Roads | | 41·9 | | 105 | 20·0 | 0·9 | 1 | | 180 |
| Ports | | | | | 49·2 | 23·7 | 66·3 | | 140 |
| Telecommunications | | | | | | 17·3 | 42·7 | | 90 |
| 3. Power | 18 | | 45 | | 71·83 | 2·88 | 10·2 | | 450 |
| 4. Mines and geological survey | | | | | 5 | 1·2 | 1·8 | | 30 |
| 5. Industry | 11 (Government expenditure) | | 41 | | 80 | 20·0 | 27·4 | | 450 |
| 6. Technical training | | | | | 1·2 | 2·0 | 5·0 | | 20 |
| 7. Water supply | | | | | | 0·9 | 1·1 | | 20 |
| Total | 134·9 | | 297 | | 466·53 | 1,400 | 1,000 | | 2,400 |

TABLE C—PAKISTAN BALANCE OF PAYMENTS WITH COUNTRIES OTHER THAN INDIA

(In million of Rupees)

| | 1949-50 | | | 1950-51 | | | 1951-52 | | | 1952-53 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dollar area | Non dollar area | Total | Dollar area | Non dollar area | Total | Dollar area | Non dollar area | Total | |
| Exports | 68.1 | 842.9 | 911.0 | | | | | | | |
| Other receipts | 4.4 | 30.7 | 35.1 | | | | | | | |
| Total receipts | 72.5 | 873.6 | 946.1 | 105 | 1,295 | 1,400 | 105 | 1,295 | 1,400 | No estimates available |
| Imports | | | 1,115.3 | | | | | | | |
| Invisible payments | | | 180.2 | | | | | | | |
| Total payments | | | 1,295.5 | 142.5 | 1,340 | 1,555 | 142.5 | 1,352.5 | 1,500 | |
| Net surplus deficit | | | 349.4 | 42.5 | 112.5 | 155 | 42.5 | 57.5 | 100 | |
| Errors and omissions | | | 0.1 | | | | | | | |
| Net investment disinvestment | | | 349.5 | | | | | | | |

NOTE.—Figures for the second quarter, 1950, are estimated as actual receipts and payments for that period are not available. These relate to the balance of payments position with countries other than India. Details of receipts and payments with India are not available.

## TABLE "D"

## POPULATION

(1) *Total population, divided by age groups :*

1949

| *Age Group* | *Population (In millions)* |
|---|---|
| 0—1 ... ... ... | 1.65 |
| 1—3 ... ... ... | 5.09 |
| 3—10 ... ... ... | 18.67 |
| 10—15 ... ... ... | 8.38 |
| 15 and above ... ... ... | 48.44 |
| Total ... ... ... | 82.23 |

NOTE.—These estimate have been arrived at on the basis of age-group percentage of the Census of 1941, since no later figures are available.

(2) *Division of population between urban and rural areas :*

1949

| | *Million* |
|---|---|
| Urban ... ... ... | 9.128 |
| Rural ... ... ... | 73.102 |

NOTE.—The above figures have been calculated on the basis of 1941 Census figures which show the percentage of urban population for areas now included in Pakistan as 11.1 and the percentage of rural population as 88.9. There is reason to believe that there has been a substantial increase in the urban population of West Pakistan due to the great influx of people from rural areas, who have settled down in cities and towns. It, therefore, would not be incorrect if the urban and rural population were now estimated as being in the neighbourhood of 9.5 million and 72.73 million respectively.

(3) *Economically active population, divided between agriculture, mining, industry and services, distinguishing armed forces.*

1949

(*a*) Economically active population : 22 million.

NOTE.—No reliable statistics are available in this respect. However, if we assume the working age of the population to be from 15 to about 55, then about 45 per cent. of the aggregate population in this group (after making an allowance for children) could be classified as workers ; we say "aggregate" because women, particularly in the lower classes join the men-folk in their work and can therefore be classified as workers.

(*b*) Economically active population is divided as follows :-

(i) *Agriculture.*—There are no figures denoting the actual number of people engaged in agriculture. It is, however, estimated that about 80 per cent. or 65.6 million depend upon it (1949).

(ii) *Mining.*—It is estimated that there are 7,000 workers employed in mines (1949).

(iii) *Industry.*—It is estimated that there are over 6,500,000 workers employed in organised industries (1949).

(iv) *Service and Armed Forces* : x

(4) *Expected rate of growth of population during the next five to ten years.*
1.5 per cent. per annum

(5) *Birthrate (number of births per year)*
Birthrate : 45 per thousand (1931-41).

(6) *Deaths per year*
Deathrate : 31 per thousand (1931-41).

NOTE.—(On Nos. 5 and 6).—The officially recorded birthrate (1940) was 33 and the deathrate 22, but these are known to be under-estimates, since in this sub-continent of India and Pakistan a third of the births and deaths are likely to go unregistered ; accordingly it would not be far from wrong to estimate that the actual birth and death rates are in the neighbourhood of 45 per thousand and 31 per thousand respectively. It may be noted that these rates have also been estimated by the Economic Survey of Asia and the Far East—1948.

(7) *Infantitle mortality rate (number of children dying in first year of life)* 25 per cent.

(8) *Recent trend of immigration and emigration* :

*From August 1947—June 1950.*

| *Immigration* | *Emigration* |
|---|---|
| 8,800,000 | 6,000,000 |

## NATIONAL INCOME.

(9) *Gross national product, as illustrated by any recent estimates showing its size and composition* :

Provisional Estimates of National income of Pakistan 1948-49.

| *Items* | | (*In thousands*) |
|---|---|---|
| 1. Volue of Major Crops | ... | 8,266,660 |
| 2. Value of Minor Crops | ... | 1,070,000 |
| 3. Value of Livestock Products | ... | 1,876,300 |
| 4. Value of forest Products | ... | 43,403 |
| 5. Value of Fish and Products | ... | 110,818 |
| 6. Income assessed to Income Tax | ... | 341,301 |
| 7. Income not assessed to income Tax, of workers engaged in industry, trade, professions and liberal arts | ... | 4,177,434 |
| 8. Income not assessed to tax of workers engaged in Posts and Telegraphs | ... | 29,000 |
| 9. Income not assessed to income tax of workers engaged in defence Services. | ... | 207,700 |
| 10. Income not assessed to income tax of workers engaged in State Services (Central and Provincial) | ... | 219,000 |
| 11. Income not assessed to tax of workers engaged in Railways | ... | 254,400 |
| 12. Income from cartage | ... | 115,000 |
| Grand Total | ... | 16,710,716 |

Population of Pakistan (excluding states) : 75.40 million.
*per capital* income : 221.6 Rs. 221-9-6

## AGRICULTURE

(10) *Acreage of cultivable land*

1949

| | *Million Acres* |
|---|---|
| Area under crops ... ... | ... 54 |
| Culturable waste ... ... | ... 23.6* |
| Current Fallow ... ... | ... 10.8* |
| Areas under Forests ... | ... 5·5 |
| Total ... ... | ... 93·9† |

* No complete recent estimates are available. Figures under these headings are for the years 1945-46.

† Excludes the States other than Bhawalpur and Khairpur.

(11) *Acreage of land under cultivation, distinguishing arable, pasture and forest*

1949

| | *Million Acres* |
|---|---|
| Area under crop ... ... | ... ·44* |
| Area under forest ... ... | ... 5·5* |
| Area under pasture ... ... | No figures available |

* Excludes the States other than Bhawalpur and Khairpur.

(12) *System of land tenure. Types and size of individual farms of holdings (average)*

(*a*) System of land tenure :—

(i) *East Bengal.*—The Principal system of land tenure is the permanent Settlement created by Regulation No. 1 of 1793. The revenue was fixed in perpetuity and all zamindars were placed in the same category. While some farmers obtained some proprietary rights which they had never possessed, the independent chiefs and the old land holding families were confirmed in the position they had occupied for centuries. In certain cases revenue-free-grants made by former rulers, which were subsequently recognised and confirmed are held as revenue-free estates. Later, when the policy underlying the Permanent Settlement was abandoned new estates were created with either Government or private persons as proprietors and they were liable to periodical revision of land revenue. There are thus four different types of tenure in East Bengal :—

1. Permanently-settled estates (revenue Paying)
2. Revenue-free estates
3. Temporarily settled estates
4. States held direct by Government

The "estates held direct by Government" are the same as what are known as ryetwari tracts elsewhere. Most of the lands in the zamindari estates are held by ryots whose rights in the land and obligation to the zamindar have been regulated by a long series of tenancy laws, the net effect of which is that the ryot possesses substantially the same rights in his holding as ryots holding land direct from Government in Government estates in East Bengal and these again are practically identical with those of ryot holding direct from the Government going under the ryotwari settlement in other provinces. The incidence of the rent payable by the ryots to the zamindars in East Bengal compares, in general, favourably with the incidence of land revenue payable to Government by ryots in ryotwari areas. The land held by a ryot may be cultivated either by himself or by crop sharing tenant or by under ryots. Under-ryots fall into three classes. of which the first possess practically all the rights of ryots except transferability ; the second and the third differ from the first mainly as regards liability to ejectment in certain circumstances. The tenant who is not an under-ryot is usually a crop sharer (called a "bargadar") and his relations with the ryot are purely contractual. The Government of East Bengal have, however, recently passed legislature for acquisition of all rent receiving interests in lands and after this law has been fully enforced during the next 10-15 years, there will be only one class of tenants in East Bengal.

(ii) *Punjab*.—There are five types of tenures in this province :—

1. Tenants at-will.
2. Owners.
3. Government tenant.
4. Tenants with rights of occupancy.
5. Government lessees.

Though the term zamindar is generally used to describe a landholder in this province, the tenure system is essentially ryotwari, that is to say, the person who holds land direct under Government is also the person who has the permanent and heritable rights to cultivate the land. This is not, however, the case in respect of lands held by "Tenants with rights of occupancy." The tenants hold under other owners who hold under Government. The nature of their right in the lands they hold is, however, substantially the same as those of ryots holding land under Government in ryotwari areas or under proprietors in permanently settled areas. They have to pay the owner a small sum in addition to the land revenue demand of the Government, for which, theoretically, the owner is held responsible. The class described as "Government tenants" was created by the Colony Act of 1910, which gives them certain rights of alienation and succession. The rights and obligations of this class of tenants are governed by a statement of conditions issued by the Government, which usually provide for the acquisition first of occupancy, and ultimately of proprietary rights. The "Government lessees" are tenants holding for the terms according to their leases. The "Tenant at-will" holds generally under "owner", and has no security of tenure beyond his claim to harvest the crops he has sown, though in practice satisfactory tenants are hard to replace and are not ejected. The prevalence of large holdings is a notable feature of this province.

(iii) *Sind*.—Here also the ryotwari system prevails. Roughly four fifths of the cultivable land is held by persons, who, as in the Punjab are described as zamindars. Their lands are cultivated by tenants (known as "Haris") on the "bated" or crop sharing system. The cultivator provides his own labour and that of his bullocks in return of his half-share of the crop which he harvests. All Government dues on the land are paid by the owner. The land owners who are unable to manage their own lands on this system customarily grant leases for a period of five years, and the lessee in his turn gets the land cultivated on the crop charging system by Haris.

(iv) *N.W.F.P.*—The principal form of land tenure in this province is called "Bhaichara" under which the whole "village brotherhood" undertake a measure of responsibility for land revenue due from individual holders to Government. In practice, however, the responsibility for payment of defaulters' revenue is not enforced. Other forms of tenure are described as Zamindari and Patidari.

(*b*) *Size of individual farms of holdings* (average) :—

(1) East Bengal.—The average holding was ascertained in 1944 to be 4.4 acres.

(2) Punjab.—We are not aware of any precise estimates of the average size of holding in this province, but the figures as estimated have been in the neighbourhood of 10 acres.

(3) Sind.—The Famine Enquiry Commission of 1945 estimates the average holding in Sind to be 38.7 acres. However, this figure does not refer to the holdings of the Haris : these vary with the crop produced. In areas of irrigated dry crop lands, the holdings are from 6 to 8 acres for cotton, 8 to 10 for wheat and 12 to 15 acres for rice.

(4) N.W.F.P.—No estimates are available.

NOTE.—Source and authority for the above figures : The Famine Enquiry Commission—Final Report 1945.

(13) *Production of main crops in tons*

| Crops | Production in thousand tons 1948--49 |
|---|---|
| Rice | 8,429 |
| Wheat | 4,103 |
| Cotton | 177 |
| Gram | 800 |
| Bajra | 373 |
| Jute | 978 |
| Rape and Mustard | 265 |
| Jowar | 213 |
| Maize | 412 |
| Sugarcane | 1,019 |
| Barley | 179 |
| Sesamum | 29 |
| Tea | 15 |
| Linseed | 12 |
| Tobacco (1947-48 | 140 |

(14) *Consumption of main food-stuffs in tons*

The total production of main food crops in 1948--49 was about 14,300,000 tons. Out of this about 3 million tons were exported and loss (including seeds, wastage, &c.) calculated at the accepted rate of about 12½ per cent., amounted to about 1,750,000 tons. Therefore, 12,280,000 tons may be estimated as the total consumption of main food-stuffs.

(15) *Yield per acre of main crops*

| Crops | Yield per acre 1948-49 lb. |
|---|---|
| Wheat | 850 |
| Rice | 890 |
| Rape and Mustard | 390 |
| Gram | 580 |
| Sugarcane (production per acre being about 13 tons) | 3,197 |
| Tea | 605 |
| Tobacco (1947-48) | 962 |
| Cotton | 166 |
| Jute | 1,240 |

(16) *Consumption of fertilisers*

The use of chemical fertilisers in this country is very limited, and the present annual consumption amounts to about 20,000 tons of ammonium sulphate.

(17) *Number of agricultural tractors*

No figures are available.

## INDUSTRY

(18) *Production of steel ingots in tons*

7,000 tons (1949-50).

(19) *Production of no-ferrous ores (copper, tin, lead, zinc, bauxite, tungsten, chrome) stated in tons (metal content)*

Nil.

(20) *Production of non-ferrous metals*

Nil.

(21) *Consumption of non-ferrous metals in tons*

Ingots : 14,000 tons (1949-50).

Fabricated products : 16,000 tons (1949-50).

(22) *Production of textiles (cotton, rayon, weel) in million yards*
Cotton : 108 million yards.
Rayon : ...
Wool : Negligible.

(23) *Consumption of textiles (cotton, rayon, wool) in million yards*
Cotton : 700 million yards.

Rayon : No figures available.
Wool : No figures available.

(24) *Production of cement*
320,000 tons (1949).

## TRANSPORT

(25) *Length in miles of roads fit for motor transport, distinguishing mileage of all-weather roads*

1949

(*a*) Length of roads fit for motor transport : 57,984 miles (excluding States).

(*b*) Length of all-weather roads : 7,929 miles (excluding States).

(26) *Number of mechnically-drawn load-carrying vehicles and their carrying capacity*

(*a*) Number of mechanically-drawn vehicles.—

| | |
|---|---|
| Buses ... ... ... | ... 4,613 |
| Lorries and vans ... ... | ... 5,970 |
| | 10,583 |

*(on 31st October, 1949)*

(*b*) Load-carrying capacity : 35,974.4 tons.

(27) *Length of inland waterways in miles*

East Pakistan : about 5,000 miles.
West Pakistan : ...

(28) *Length and guage of single and double track railways in miles*

| *Railways* | *Broad gauge.* | *Metre gauge.* | *Narrow gauge.* | *Total* |
|---|---|---|---|---|
| N. W. R. .. .. | 4,561.58 | 318.74 | 481.77 | 5,362.09 |
| East Bengal Railway .. | 498.50 | 1,101.72 | 19.50 | 1,619.72 |
| | 5,060.08 | 1,420.46 | 501.27 | 6,981.81 |

(29) *Number and approximate average age of locomotives*
(*a*) *Number of locomotives.—*

| | *Actual number in service (on 31st March, 1950)* |
|---|---|
| *N.W.R.* | |
| Broad-guage ... ... ... | ... 764 |
| Metre-guage ... ... ... | ... 25 |
| Narrow-guage ... ... ... | ... 53 |
| *E.B.R.* | |
| Broad-gauge ... ... | ... 156 |
| Metre-guage ... ... ... | ... 274 |
| Narrow-guage ... ... ... | ... 4 |
| Total ... ... ... | 1,276 |

(*b*) Average age of locomotives : 35 years.

(30) *Number of railway wagons and their carrying capacity*

(*a*) Number of railway wagons :—

| | *Actual number of wagons in service (on 31st March, 1950)* |
|---|---|
| *N.W.R.* | |
| Broad-gauge ... ... ... ... | 22,584 |
| Metre-gauge ... ... ... ... | 696 |
| Narrow-gauge ... ... ... ... | 587 |
| *E.B.R.* | |
| Broad-gauge ... ... ... ... | 5,397 |
| Metre-gauge ... ... ... ... | 8,364 |
| Narrow-gauge ... ... ... ... | 9 |
| Total ... ... ... ... | 37,637 |

(*b*) Load carrying capacity of railway wagons :—

| *Wagons* | *Capacity per wagon (in tons)* | *Total capacity (in tons)* |
|---|---|---|
| 27,981 Broad-gauge wagons .. .. .. | 22 | 615,582 |
| 9,060 Metre-gauge wagons .. .. .. | 11 | 99,660 |
| 696 Narrow-gauge wagons .. .. .. | 7 | 4,872 |
| Total .. .. | | 720,114 |

(31) *Number and capacity in tons of ports for ocean-going vessels*

| | 1949 *Capacity in tons per annum* |
|---|---|
| Karachi ... ... ... ... | 45,000,000 |
| Chittagong ... .. ... ... | 18,000,000 |

(32) *Tonnage of goods per annum handled by ports*

| *Ports* | *Tonnage handled per annum* |
|---|---|
| Chittagong ... | 921,607 (Jan. 1949 to Dec. 1949) |
| Karachi .. | 2,831,896 (March 1949 to April 1950) |

(33) *Number and deadweight tonnage of coastal fleet*
No figures are available.

(34) *Tonnage carried annually on*—

(*a*) Roads, by mechanically propelled vehicles : No figures available.
(*b*) Railways, by wagons : 9,791,786 tons (1949).
(*c*) Inland waterways, by powered craft : 20 million tons (1948).
(*d*) Coastal shipping : No figures are available.

(35) *Tonnage carried by animal-drawn vehicles and unpowered water craft*
No figures are available.

(36) *Fuel consumption by road vehicles and railway locomotives distinguishing types of fuel*

(*a*) Road vehicles :—

| | *West Pakistan (Gallons)* | *East Pakistan (Gallons)* |
|---|---|---|
| (*i*) Petrol .. .. .. .. .. | 21,500,087 | 2,835,767 |
| (*ii*) High speed diesel oil .. .. .. | 165,450 | .. |

(36) *Fuel consumption by road vehicles and railway locomotives distinguishing types of fuel (cintinued)*

(*b*) Railway locomotives :—

| | *West Pakistan (Gallons)* | *East Pakistan (Tons)* |
|---|---|---|
| (*i*) High speed diesel oil | 269,423 | |
| (*ii*) Furnace oil | 45,047,649 | |
| (*iii*) Coal | 694,915 (tons) | 431,192 |

FUEL AND POWER

(37) *Generating capacity for electricity in kilowatts divided between hydro-electric and thermal generation*

| | *kW.* |
|---|---|
| (*a*) Hydero-electric | 9,600 |
| (*b*) Thermal | 67,030 |
| Total | 76,630 |

(38) *Output of electricity in kWh.*

158,739,877 units (1949) : This is a provisional estimate since all returns have not yet come in.

(39) *Production of coal in tons*

324,027 tons (1949).

(40) *Consumption of coal in tons*

1,476,832 tons (1949) (estimate)

(41) *Production of petroleum, crude oil and products*

The production in 1950 was 134,600 tons only.

(42) *Consumption of petroleum products*

| | *In 1950* |
|---|---|
| Imports | 781,400 |
| Production | 134,600 |
| Total | 916,000 |

COMMUNICATIONS

(43) *Number of telephone installed*

17,626 (1950).

(44) *Number of radio sets installed*

| | |
|---|---|
| East Pakistan | 5,107 |
| West Pakistan | 38,709 |
| | 43,816 |

(Up to 30th June, 1950)

WATER

(45) *Existing acreage dependent on irrigation canals for (a) single crops, (b) double crops*

About 23 million acres— no separate figures are available for single and double crops.

(46) *Existing acreage dependent on tube-well or other types of irrigation for (a) single crops, (b) double crops*

Total about 4 million acres—no separate figures are available for single and double crops.

## LABOUR

(47) *Number of workers employed in industrial establishments*
About 650,000.

(48) *Number of technical colleges and training institutes*

| | *East Pakistan* | *West Pakistan* |
|---|---|---|
| Technical Colleges | 2 | 2 |
| Training Institutes | 81 | 27 |

(49) *Annual output of technicians from these technical colleges and training institutes*
No figures available.

(50) *Average annual number of technicians trained overseas*
No figures available.

## HEALTH AND EDUCATION

(51) *Number of qualified doctors*

676 in East Pakistan, and
2,015 in West Pakistan

2,691 (Total)

(52) *Number of hospital beds*

There are 436 hospitals in East Pakistan and 308 in West Pakistan. The exact number of beds is not known. But on the basis of 0.24 beds per thousand, we may estimate the number of hospital beds as 12,000 in East Pakistan and 8,500 in West Pakistan.

(53) *Number of places in schools, related to number of children aged 5 to 15*

The only information available under this item is as follows :—

| | *No. of Units.* | |
|---|---|---|
| | *East Pakistan* | *West Pakistan* |
| Primary schools .. .. | 29,634 | 8,819 |
| plus | 1,159 | Madrasas |
| Middle schools .. .. | 2,675 | 2,158 |
| High schools* .. .. .. | 1,306 | 343 |

* The capacity of each school is estimated at 250 students. The total number of students in East Pakistan is 326,500 and in West Pakistan 857,000.

(54) *Proportion of population which is illiterate*

This may be estimated at 85 to 90 per cent. In the absence of census figures, only a rough estimate of the percentage of literacy can be made. The following table gives an approximate idea of the percentage of literacy in the various areas of Pakistan :—

| *Province* | *per cent. of literacy* |
|---|---|
| East Bengal ... ... ... ... ... | 15 |
| N.W.F.P. ... ... ... ... ... | 12 |
| Baluchistan ... ... ... ... ... | 2 |
| Sind ... ... ... ... ... ... | 10 |
| Punjab ... ... ... ... ... ... | 11 |

(55) *Number of University students graduating, separating arts and sciences (including technology)*

No figures are available.

(56) *Number of students qualifying from technical schools*
No figures are available.

## Foreign Trade

(57) *Value of Imports c.i.f.*
Rs. 1,272,781,465 (1949).

(58) *Value of Exports f.o.b.*

| | |
|---|---|
| Pakistan merchandise ... ... | Rs. 827,362,901 (1949) |
| Total exports, including re-exports of foreign merchandise ... ... ... | Rs 907,627,143 (1949) |

## LIST OF MAIN PROJECTS INCLUDED IN THE DEVELOPMENT PLAN

| *S. No* | *Name of Scheme* |
|---|---|
| | **Agriculture and Irrigation** |
| 1 | Control of black headed cricket. |
| 2 | Distribution of improved seed varieties. |
| 3 | Mechanical Cultivation (Baluchistan). |
| 4 | Subsidised distribution of Sulphate of Ammonia to Zamindars of Sind. |
| 5 | Drainage of low areas in Khulna District. |
| 6 | Silt clearance of Naroda River. Excavation of a channel from Nak-Kati and Sunti bils to river Fakirni. |
| 7 | Drainage of low areas in Jessore District. |
| 8 | Excavations of (*a*) Katuajuri and Baliajuri Khals and (*b*) Bjayapur Khal in Tippara District. |
| 9 | Improvement of Nalaya River. |
| 10 | Subsidised distribution of manures (East Bengal). |
| 11 | Mechanised Cultivation (East Bengal). |
| 12 | Central Agricultural Engineering Organisation. |
| 13 | Narachi Irrigation Scheme. |
| 14 | Development of Thal Area. |
| 15 | Rasul Tube-well Project. |
| 16 | Bhambhanwali-Bedian Link. |
| 17 | Khashki Lift Irrigation. |
| 18 | Rod Kohi Scheme |
| 19 | Construction of Tube-wells in Kohat District. |
| 20 | Drainage and reclamation of waterlogged land in Mardan. |
| 21 | Construction of weir at Kurram Garhi. |
| 22 | Power Pump Irrigation. |
| 23 | Construcion of Daulat Khan Bund. |
| 24 | Re-excavation of Pahariya River. |
| 25 | Re-excavation of Khal from Baniunji Fil to Bangashi River. |
| 26 | Re-excavation of Taltolla Khal. |
| 27 | Scheme for Plant Protection. |
| 28 | Re-excavation of Kalapani Khal and two drainage cuts from Teliami and Tanachira beel for drainage of about 25.89 miles. |
| 29 | Construction of regulator at the junction of old and new course of Tulsi-ganga. P.S. Badalgechi, District Rajshahi. |
| 30 | Lower Sind Barrage. |
| 31 | Abbasia Colonisation Scheme. |
| 32 | Machinery for the construction of essential works of the Public Works Department, Sind. |
| 33 | Seed Farms. |
| 34 | Survey and Commercial exploitation of Medicinal Herbs. |
| 35 | Development of Fisheries. |
| 36 | Development of Cattle Wealth. |
| 37 | Plant Protection. |
| 38 | Anti-Waterlogging measures. |
| 39 | Miscellaneous Agricultural and Irrigation Schemes. |

| *S. No.* | *Name of Scheme* |
|---|---|
| | INDUSTRY |
| 40 | Textile. |
| 41 | Paper Industry. |
| 42 | Jute Industry. |
| 43 | Heavy Chemicals. (Fertiliser, Sulphuric Acid, Caustic Soda.) |
| 44 | Miscellaneous. (Oil mills, leather goods, glass industry, &c.) |
| | POWER |
| 45 | Malakand Power House. |
| 46 | Rasul Hydro electric Project |
| 47 | Dargai Hydro-electric Project. |
| 48 | Mianwali Hydro-electric Project. |
| 49 | Warsak Hydro-electric Project. |
| 50 | Karnafulli Hydro-electric Project |
| 51 | Central Generating Stations at Hyderabad and Sind. |
| 52 | Provision of increased power to the Makerwal Colliery Area. |
| 53 | Rehabilitation of Power Station in the Punjab. |
| 54 | Diesel Power Station for Chittagong. |
| 55 | Electrification Scheme of Pishir. (Baluchistan). |
| | TRANSPORT AND COMMUNICATIONS |
| | (i) *Transport (Railways)* |
| 56 | Rehabilitation of Railways. |
| 57 | Construction of New Lines. |
| | (ii) *Ports* |
| 58 | Development of Chittagong Port. |
| 59 | Dry Dock at Karachi. |
| | (iii) *Roads* |
| 60 | Construction of new roads. |
| | (iv) *Telecommunications* |
| 61 | Development of Telecommunications. |
| | MINES AND GEOLOGICAL SURVEY. |
| 62 | Development and modernisation of coal mines working . |
| 63 | Mechanisation of other mines. |
| 64 | Geological survey |
| | WATER SPPLY |
| 65 | Karachi Water Supply Scheme. |
| | TECHNICAL TRAINING |
| 66 | Training of personnel and establishment of training institutes and polytechnics. |
| 67 | Scholarships for studies abroad. |

# BRIEF PARTICULARS OF SOME OF THE MAIN PROJECTS

*Serial No.* 1

## CONTROL OF BLACK-HEADED CRICKET

*Brief Description of Project.*—The black-headed cricket is an insect which appears every year during the period from April to August over parts of West Pakistan in an area of about 400,000 acres and it is estimated that it causes damage to the extent of 10 per cent. to 15 per cent. of the crops which it attacks. The annual loss caused by the insect is estimated at Rs. 1 million per annum.

*Purpose of Project.*—The object of the scheme is to carry out operations against this insect on a large scale.

*Undertakers of Project.*—Ministry of Agriculture

*Source of Finance.*—Central Government.

*Total Estimated Cost.*—

Internal—Rs. 100,000.
Exernal—Negligible.—Stmall quanities of chemicals will be imported for the scheme, if not locally available.

*Date Begun (or to be Begun).*—April, 1949.

*Expenditure up to June, 1951*—Rs. 79,000.

*Expenditure Remaining after July, 1951.*—

Internal—Rs. 21,000.
External—X.

*Expenditure, 1951—52.*—

Internal—Rs. 30,000 (including expenditure during April-June, 1951).
External— —

*Expenditure, 1952-53.*—

Internal— —
External— —

*Date of Completion.*—1951-52, in the first instance. But in view of the success of the scheme it will presumably be continued for a few years more to eliminate the insect completely.

*Techanical Assistance Required.*—Nil.

*Serial No.* 2.

## DISTRIBUTION OF IMPROVED VARIETIES OF SEEDS, ETC.

*Brief Description of Project.*—The object of this scheme is to encourage the general development of agriculture in Baluchistan by supplying improved varieties of seeds and agricultural implements, laying down demonstration plots and giving general advice on cultivation of crops. It is expected that the entire area will be brought under improved seeds of these crops in the course of the next 5 years, the present area being 150,000 acres. In approving this scheme, the Development Board has recommended that the distribution of improved varieties of wheat seed on a large scale should no longer be subsidized.

*Purpose of Project.*—The scheme will help in increasing production and raising the general standard of farming in the province.

*Undertakers of Project.*—Baluchistan Administration.

*Source of Finance.*—Central Revenues.

*Total Estimated Cost.*—

Internal—Rs. 1,800,000.
External—Nil.

*Date Begun (or to be Begun).*—1944-45.

*Expenditure up to June, 1951.*—Rs. 1,297,982.

*Expenditure Remaining after July, 1951.*—Rs. 502,018.

*Expenditure, 1951-52.*—

Internal—Rs. 575,000.
External— —

*Expenditure*, 1951-53.—
Internal— –
External— –

*Date of Completion.*—Sanctioned up to March, 1952.
This scheme will, however, continue to function in slightly modified from till the Seed Farms provided in this plan are established in Baluchistan.

*Technical Assistance.*—Nil.

*Serial No* 3.

## MECHANICAL CULTIVATION SCHEME

*Brief Description of Project.*—The scheme for mechanical cultivation aims at bringing of new areas under cultivation by terracing and bunding of barani land in Baluchistan and by increasing productivity of areas already under cultivation by the use of improved implements.

*Purpose of the Project.*—It is expected that this scheme should be able to bring under cultivation about 25,000 acres of new land by end of 1951-52.

*Undertakers of Project.*—Central Revenues.

*Total Estimated Cost.*—Rs. 1,538,425.
Internal—Rs. 1,538,000.
External—For this small scheme, purchases of machinery are made in Pakistan currency from lacal agents of manufactures.

*Date Begun.*—1946-47.

*Expenditure up to June*, 1951.—Rs. 1,334,806.

*Expenditure after July*, 1951—Rs. 203,619.

*Expenditure*, 1951-52.—Rs. 213,619.

*Expenditure*, 1952-53.—.

*Date of Completion.*—By end of 1951-52.—The scheme is likely to be amalgamated with the bigger scheme entitled "Central Agricultural Engineering Organisation" (Serial No. 12).

*Technical Assistance.*—Nil

*Serial No.* 4.

## DISTRIBUTION OF SULPHATE OF AMMONIA TO ZAMINDARS AT SUBSIDY

*Brief Description of Project.*—Sulphate of Ammonia is being used as a fertilizer in Sind since 1944, but it is necessary to make it more popular in order to increase the yield of crops. Under this scheme it is intended to distribute 2,000 tons of Ammonium Sulphate during 1950-51 on a 50 per cent. subsidy basis at the rate of 1 cwt. per acre of paddy and 2 cwts. per acre of cotton. The subsidy will be distributed in form of a reduction in the selling rates of Ammonium Sulphate. The issue of the subsidized furtilizer would be restricted to farms not exceeding 200 acres.

*Purpose of Project*—The object of this scheme is to encourage the use of fertilizers and thus raise the yields of crops in Sind.

*Undertakers of Project.*—*Provincial Government of Sind.*

*Source of Finance.*—For the year 1950-51, the expenditure involved will be shared equally by the Provincial and the Central Governments.

*Total Estimated Cost.*—Rs. 1,309,000.
Internal—
External—Rs. 1,309,000.

*Date Begun.*—1950-51.

*Expenditure up to June*, 1951.—Rs. 374,000.

*Expenditure remaining after July*, 1951 – Rs. 935,000.

*Expenditure.*—1951-52 – Rs. 187,000.

*Expenditure.*—1952–53 – Rs. 187,000.

*Date of Completion.*—1952–53.

The scheme is likely to be continued after the effects of the first year's operation have been examined. However, the amount of subsidy will be reduced gradually, to say 25 per cent., thus reducing the expenditure of the scheme.

*Technical Assistance Required in Relation to Project.*—

*Serial No.* 5.

## DRAINAGE OF LOW AREAS IN KHULNA DISTRICT FOR GROWING MORE FOOD.

*Brief Description of Project.*—This scheme provides for improving the drainage of certain low areas in Khulna District of East Pakistan, and is divided into two parts:—

(*a*) Drainage of Bil Gullee; and

(*b*) Re-excavation of Bishkhali river.

*Purpose of Project (e.g., its Effect on the Economy and Living Standards).*—The Scheme is a part of East Bengal Government's plan to increase food production. It is expected to benefit an area of 39 square miles with an increase of production of paddy by about 6,000 tons per year.

*Undertakers of Project.*—Government of East Bengal.

*Source of Finance.*—The Government of East Bengal.

The Central Government has, however, given an outright grant of Rs. 210,000 to cover half the expenditure during 1950—51.

*Total Estimated Cost.*—

Internal – Rs. 1,141,000.
External – X

*Date begun (or to be begun)* – 1950-51.

*Expenditure up to June*, 1951.—Rs. 420,000.

*Expenditure Remaining after July*, 1951.—Rs. 721,476.

Internal – Rs. 721,476.
External – X

*Expenditure*, 1951-52.—

Internal – Rs. 400,000.
External – X

*Expenditure*, 1952-53—

Internal – Rs. 321,476.
External – X

*Date of Completion.*—1952-53.

*Technical Assistance Required in Relation to Project.*—Nil.

*Serial No.* 6.

## SILT CLEARANCE OF NARODA RIVER AND RE-EXCAVATION OF A CHANNEL FROM NAK-KATI AND SUNTI BILS TO RIVER FAKIRNI.

*Brief Description of Project.—Purpose of Project (e.g., its Effect on the Economy and Living Standards).*—This is a drainage scheme of which the benefit will extend over an area of 13 square miles in the district of Rajshahi in East Pakistan. It is expected that this scheme will result in an additional production of 2,150 tons of paddy and rabi crops, besides improving the sanitary conditions of the area.

*Undertakers of Project.*—Government of East Bengal.

*Source of Finance.*—Government of East Bengal. The Central Government has, however, given an outright grant of Rs. 94,000 to meet half the expenditure on this scheme during 1950-51.

*Total Estimated Cost.*—

Internal – Rs. 389,000.

External – X

*Date begun (or to be begun).*—1950-51.

*Expenditure up to June, 1951.*—Rs. 194,500.

*Expenditure Remaining after July, 1951.*

Internal – Rs 194,500.

External – X.

*Expenditure 1951-52.*—

Internal – Rs. 214,500.

External – X.

*Date of Completion.*—End of 1951-52 or beginning of the financial year 1952-53.

*Technical Assistance Required in Relation to Projects.*—Nil.

*Serial No.* 7.

## DRAINAGE OF LOW AREAS IN JESSORE DISTRICT.

*Brief Description of Project (Purpose of Project).*—This scheme is designed for (*a*) drainage of Makhla and other bils and (*b*) re-excavation of Baliarchandra Khal for drainage of some bils, in Jessore District. It forms a part of the series of Grow More Food schemes of East Bengal.

*Undertakers of Project.*—Government of East Bengal.

Source of finance—Government of East Bengal.

The Central Government has, however, given a grant of Rs. 58,000 to meet half of the expenditure during 1950-51.

*Total Estimated Cost.*—

Internal – Rs. 207,000 approx.

External – –

*Date begun (or to be begun).*—1950-51.

*Expenditure up to June, 1951.*—About Rs. 103,000.

*Expenditure Remaining after July, 1951.*—

Internal – Rs. 104 000.

External – –

*Expenditure, 1951-52.*—

Internal – Rs 134,000.

External – –

*Expenditure, 1952-53.*—

Internal – –

External – –

*Date of Completion.*—By end of 1951-52.

*Technical Assistance Required in Relation to Project.*—Nil.

*Serial No.* 8.

## RE-EXCAVATION OF (a) KATUAJURI AND BALIAJURI KHALS, (b) BJAYAPUR KHAL.

*Brief Description of Project.—Purpose of Project* (e.g., *its Effect on the Economy and Living Standards*).—These Khals are lying in badlysilted-up conditions, the main causes of deterioration being the obstructions and the encroachments on the Khals. The purpose of this scheme is to re-excavate the Khals so as to improve drainage, sanitary, agricultural and navigation conditions of the area which lies in the Tipperah District of East Pakistan. This scheme will benefit an area of 23,360 acres of land and an extra yield of 2,268 tons of food grains per year is expected

*Undertakers of Project.*—Government of East Bengal.

*Source of Finance.*—Government of East Bengal. The Central Government, has, however, given an outright grant of Rs. 45,000/- to meet half the expenditure involved on the scheme during 1950-51.

*Total Estimated Cost.*—

Internal—Rs. 150,000.
External – X.

*Date Begun (or to be Begun).*—1950-51.

*Expenditure up to June, 1951.*—

Internal—Rs. 75,000/-
External – X.

*Expenditure Remaining after July, 1951.*—

Internal – Rs. 75,000/-
External—X.

*Expenditure, 1951-52.*—

Internal – Rs. 93,000/-
External – X.

*Expenditure, 1952-53.*—

Internal – X.
External — X.

*Date of Completion.*—1951-52.

*Technical Assistance Required in Relation to Projects.*—Nil.

*Serial No.* 9.

## IMPROVEMENT OF NALEYA RIVER.

*Brief Description of the Scheme—Purpose of Project (e.g., its Effect on the Economy and Living Standards).*—Under this scheme, it is proposed to improve the sanitary, drainage and agricultural conditions of an area of about 36 sq. miles in Rangpur District. As a result, an extra production of 4,700 tons per annum of foodgrains may be expected.

*Undertakers of Project.*—Government of East Bengal.

*Source of Finance.*—Provincial Revenues. The Central Government have, however, given an outright grant of Rs 100,000 to meet half the expenditure on this scheme during the year 1950-51.

*Total Estimated Cost.*—

Internal – Rs. 597,000/-.
External – X.

*Date to be Begun.*—1950-51.

*Expenditure up to June, 1951.*—Rs. 200,000.

*Expenditure Remaining after July, 1951.*—

Internal—Rs. 397,000.
External — X.

*Expenditure, 1951-52.*—

Internal – Rs. 310,000/-.
External - X.

*Expenditure, 1952-53.*—

Internal—147,000/-.
External — X.

*Date of Completion.*—1952-53.

*Technical Assistance Required in Relation to Projects.*—Nil.

*Serial No.* 10.

SUPPLY OF MANURES AT SUBSIDY.

***Brief Description of Project.—Purpose of Project*** (e.g., *its Effect on the Economy and Living Standards*).—With a view to popularizing the use of manures and fertilizers among the cultivators and increasing the production of foodgrains in a deficit area, the Government of East Bengal have sponsored this scheme for subsidizing the supply of manures to farmers. Under this scheme, 795,000 acres will receive fertilizers every year, and the increase in production per annum is estimated as below :—

| | | | |
|---|---|---|---|
| Cereals | ... | ... | 93,518 tons |
| Sugar cane | ... | ... | 48,555 ,, |
| Potatoes | ... | ... | 40,000 ,, |
| Pulses | ... | ... | 14,815 ,, |
| Others | ... | ... | 9,408 ,, |

*Undertakers of Project.*—Government of East Bengal.

*Source of Finance.*—Provincial Revenues.—The Central Government has given a sum of Rs. 1,000,000 as an outright grant to meet half the expenditure on this scheme during 1950151.

*Total Estimated Cost.*—Rs. 114,400,000.

Internal — Rs. 33,100,000.

External—Rs. 81,300,000.

*Date Begun (or to be Begun).*—1950-51.

*Expenditure up to June, 1951.*—Rs. 22,880,000.

*Expenditure Remaining after July, 1951.*—Rs. 91,520,000 approx.

Internal—Rs. 26,480,000.

External—Rs. 65,040,000.

*Expenditure, 1951-52.*—

Internal — Rs. 6,620,000.

External — Rs. 16,260,000.

*Expenditure, 1952-53.*—

Internal—Rs. 6,620,000.

External—Rs. 16,260,000.

*Date of Completion.*—1954-55.

***Technical Assistance Required in Relation to Projects.***—Nil.

*Serial No.* 11.

SCHEME FOR MECHANIZED CULTIVATION IN EAST BENGAL.

***Brief Description of Project—Purpose of Project.***—East Bengal comprises an area of 53,920 square miles out of which 22 million acres are under cultivation. This territory produces annually 1,222,000 tons of jute which is exported in its entirety and these exports constitute about 58 per cent. of the entire exports of Pakistan. The value of the exported jute is approximately 250 million dollars. Besides jute, East Bengal produces 40 million lbs. of tea and 7,760,000 tons of foodgrains and also 110,000 tons of oil seeds, etc. The population of East Bengal is nearly 46.72 millions and because of the large concentration of effort on the production of jute, very large quantities of foodgrains and edible oils have to be imported involving the use of large sums in foreign currencies. The Government of East Bengal are highly concerned about the situation regarding food in the province and consider it a matter of the highest importance to endeavour to make the province as self-sufficient in the supply of food and edible oils as is possible without infringing unduly on the areas under jute cultivation. This objective can be attained only by introducing intensive methods of agriculture, using mechanical implements, chemical fertilizers, etc. The present scheme relates to the purchase of fifty tractors during the first year and one hudred tractors annaually for the next four years, as a first step towards the mechanization of agriculture in the province.

Mechanization of agriculture is particularly necessary in East Bengal for the following reasons.—

(i) Draught cattle are scarce and expensive and sametimes good land is left fallow for want of draught power.

(ii) Some lands, capable of yielding two crops a year, are not put under the first or second crop on account of short cultivation season which requiries quick cultivation, possible by machines but not cattle.

(iii) Some lands are not cultivated on account of their being difficult or unlevel, while machines can easily cultivate such lands also.

East Bengal is also confronted with the problem of bringing under cultivation an area of 3,204 square miles, known as Chittagong Hill Tracts. It has a population of about 280,000 only. The use of bulldozers and tractors is essential for cultivating this area, considering its terrain. If these tracts are brought under cultivation, it is expected that East Bengal would become self-sufficient in food and edible oils to a very large extent.

It has been decided that the tractors purchased under the scheme should be distributed over a number of centres to be set up all over the province, and let out on hire to the landlords on payment of suitable fees.

In order to maintain these tractors in proper condition, provision has been made under this scheme for the setting up of a Central Workshop, four subsidiary workshops, and ten mobile workshops. These workshops will undertake jobs both on Government and private account.

For the efficient working of the centres it has also been decided to create the post of a Deputy Director (Mechanized Agriculture), and make him responsible for all the work in connection with the mechanical cultivation in the province. He will be assisted by an Agricultural Engineer and other necessary staff for the working of the centres, maintenance and upkeep of the machines, operation of the tractors, etc., etc.

*Undertakers of Project.*—Government of East Bengal.

*Sources of Finance.*—Grants and loans obtained from or through the Central Government.

*Total Estimated Cost.* Rs. 29,050,000.

Internal -- Rs. 3,200,000.
External -- Rs. 25,850,000.

*Date to be Begun* 1950--51.

*Expenditure up to June, 1951.*—Rs. 3,450,000

*Expenditure Remaining after July, 1951.*—Rs. 25,600,000.

Internal -- Rs. 2,600,000.
External -- Rs. 23,000,000.

*Expenditure, 1951--52.*—

Internal -- Rs. 650,000.
External -- Rs. 5,750,000.

*Expenditure, 1952--53.*—

Internal -- Rs. 650,000.
External -- Rs. 5,750,000.

*Date of Completion.*—1954--55. In fact 5 years after availability of funds.

*Technical Assistance required in Relation to Projects.*—Two Officers will be trained abroad in mechanized cultivation and mechanized engineering.

*Serial No.* 12.

## CENTRAL AGRICULTURAL ENGINEERING ORGANIZATION

*Brief Description of Project—Purpose of Project.*—The necessity of mechanizing agriculture is so self-evident that it needs no justification. In under-developed countries, particularly where archaic methods and paucity of fertilizers—natural or chemical—have exchausted both the soil and the tiller, the introduction of modern and mechanical implements is an urgent necessity if the standards of living of the people are to be improved and they are to be convinced that something is being done to ameliorate the drugery of existence. Considering the prevalent illiteracy and poverty in this country, it is not to be expected that the small farmer will be able to turn to mechanical

ways of farming on his own account. He has to be educated and subsidized, either directly or indirectly. It is essential, therefore, for the Government to establish tractor farms in the country. This scheme has, therefore, been prepared with the following aims.—

(i) Provision of a small number of earth-moving machinery six composite batteries of 14 tractors each of various powers and sizes for undertaking reclamation work in the eroded areas;

(ii) Establishment of a central agricultural engineering organization and workshop which would popularize the use of modern machinery.

The scheme may be divided into three parts.

(1) Six batteries of tractors and essential spare parts.

(2) Ten subsidiary workshops including six mobile units, without which the batteries cannot be maintained in working order.

(3) A central modern workshop, capable of overhauling tractors, both owned by Government as well as by farmers, training engineers, mechanics, drivers, and generally providing the requisite conditions under which mechanization may proceed.

This scheme pertains to West Pakistan only except in the matter of the central workshop. A similar project for East Pakistan has been prepared separately (S. No. 11). It is intended to employ this machinery and organization for the following purposes immediately.—

(*a*) Thal Project—Punjab.—(This is in addition to the separate Thal Development Scheme.)

This project aims at providing irrigation facilities for about two million acres of culturable waste land, which can be made use of fully only if modern methods are employed for reclamation and agriculture. The following work has to be done with the machinery.—

(i) Light reclamation work through tractor ploughing, levelling and cleaning operation.

(ii) Medium reclamation work, scrub jungle cleaning, ploughing, earth-moving, scrapping and levelling operations.

(iii) Heavy reclamation work, scrub jungle cleaning, earth-moving, filling, leveiling, terracing and bunding operations.

(*b*) *Rawalpindi—Division—Punjab.*—Trans-rigerine reclamation work.—

(i) Medium reclamation work, ploughing, scrapping, earthmoving, filling and levelling.

(ii) Anti-erosion operations. Heavy reclamation work, control of heavy water-shed, dam building, earthmoving, gully plugging, scrapping, levelling, bunding, and terracing operations.

(*c*) *Other Districts—Punjab.*—(i) Ordinary contract ploughing and after operations on arable land for ordinary production.

(ii) Anti-waterlogging operations under Rasul Project.

*Note.*—Other works in the Province of Punjab needing mechanical aid are excavation of canals and channels and construction of roads.

(*d*) *Baluchistan.*—The Province of Baluchistan has extensive fertile tracts of land with possibilities of good irrigation water supply through percolation wells and canals if an organization is set up to start medium reclamation work through tractor ploughing and bunding and terracing operations. An area of 200,000 acres awaits reclamation.

(*e*) *N.W.F.P.—Peshawar Valley and Kohat District.*—(Area, 40,000 acres.) Light reclamation work, tractor ploughing, levelling and filling operation.

*North Waziristan.*—Medium reclamation, tractor ploughing, levelling, earth-moving and filling operations.

(f) *Sind—Lower Sind Barrage.*—Area, 500,000 acres. In order to bring this under cultivation it is necessary to do the following work :—

(i) Medium reclamation work, tractor ploughing, scrapping, scrub jungle cleaning and levelling operations.

(ii) Other district in Sind also offer field for light reclamation work, scrapping, jungle cleaning, tractor ploughing and levelling.

It is intended that the Central Government should make available suitable machinery to the Provinces and States on suitable terms, for ordinary cultivation as well as for reclamation. Based on the experience acquired in other parts of the Indo-Pakistan Sub-Continent, it has been decided that a composite battery of 14 tractors with necessary equipment, constitutes an economic unit for cultivation and reclamation operations. Realising that mechanisation in agriculture can be introduced only when adequate facilities are available for servicing and maintenance of the imported machinery, provision has been made for the establishment of a fully equipped Central Workshop near Karachi, capable of undertaking overhaul and major repairs to the machinery. To this Central workshop will also be affiliated the Institute of Traction Technology and Agricultural Engineering Research proposed to be set up by the Government of Pakistan. Provision has also been made for the establishment of subsidiary workshops at the following places for the purpose of rendering immediate and minor repairs to the machinery :—

| | | |
|---|---|---|
| N.W.F.P. | ... ... | 2 |
| Punjab | ... ... | 2 |
| Sind | ... ... | 1 |
| Baluchistan | ... ... | 1 |
| Bhawalpur | ... ... | 1 |
| Other States | ... ... | 3 |
| Total | ... ... | 10 |

These workshops will include six mobile units for the purpose of rendering assistance to the batteries of tractors in emergent cases.

This scheme will be able to raise the production of food-grains by about 30,000 tons a year. At the end of five years the additional production will be 150,000 tons per annum, the value of which is estimated at Rs. 40 million.

*Undertakers of Project.*—Central Government.

*Source of Finance.*—Loans and/or grants obtained through international or common-wealth sources.

*Total Estimated Cost.*—Rs. 33,000,000.

Internal—Rs. 23,000,000.

External—Rs. 10,000,000.

*Date to be Begun.*—When funds are available.

*Expenditure up to June, 1951.*—Negligible.

*Expenditure Remaining after July, 1951.*—

Internal—Rs. 23,000,000.

External—Rs. 10,000,000.

*Expenditure, 1951-52.*—

Internal—Rs. 4,575,000

External—Rs. 3,050,000.

*Expenditure, 1952-53.*—

Internal—Rs. 5,100,000.

External—Rs. 8,225,000.

*Date of Completion.*—Five years from the date of commencement.

*Technical Assistance.*—Nil.

*Serial No.* 13.

## NARECHI IRRIGATION SCHEME

*Brief Description of Project.*—Under this scheme it is proposed to construct a weir and unlined channel, and to connect it with an old channel for perennial irrigation of a part of the district of Loralai in Baluchistan.

*Purpose of the Project.*—This will help to bring about 3,200 acres under plough and thus increase the output of food-grains by 1,000 tons per annum approximately.

*Undertakers of the Project.*—Baluchistan Administration.

*Source of Finance.*—Central Development Loans.

*Total Estimated Cost.*—Rs. 211,000.

Internal—Rs. 211,000.

External— —

*Date Begun (to be Begun).*—1950-51.

*Expenditure up to June, 1951.*—Negligible.

*Expenditure Remaining after July, 1951.*—

Internal—Rs. 211,000.

External—Negligible.

*Expenditure, 1951-52.*—

Internal—Rs. 211,000.

External— —

*Expenditure, 1952-53.*—

*Date of Completion.*—One year after completion of surveys.

*Techanical Assistant Required.*—Nil.

*Serial No.* 14.

## DEVELOPMENT OF THAL AREA

*Brief Description of Scheme.*—The question of developing the Thal tract which extends over the three districts of Shahpur, Mianwali and Muzaffargarh in the Province of Punjab was first considered in 1870, but was deferred from time to time in favour of more urgent schemes in areas where the system of communication was better and access was easier. It was however, never denied that the development of the Thal would augment the granaries of the Dominion, would turn an arid desert into a fertile tract and would benefically affect the climate of the Province as a whole. In 1939 work was actually commenced on the Project but was suspended in 1942 on account of the difficulties caused by wartime conditions. The arrival of a large number of refugees from Bharat in 1947 increased the pressure on land, which had to be parcelled out in small and uneconomic units. In the Lyalpur district the normal population was increased by 32 per cent., and in the Montgomery district by 20 per cent. It thus became essential to remove the congestion in these districts and the only way of doing this was to move agricultural population from the congested districts to the sparsly cultivated and thinly populated Thal area, and to settle them there on a permanent basis.

The Government accordingly decided to take up the work of extending irrigation to the Thal area with determination and to complete it as soon as possible. The project consists of one main canal (called the Main Line Upper) taking off from River Indus at Kala Bagh. This is a lined channel with a capacity of 6,000 cusecs, capable of being increased to 10,000 cusecs when necessary. This canal trifurcates, at its tail, into three channels with capacity of 4,524 cusecs, 1,463 cusecs and 615 cusecs respectively. Considerable portion of this work has been completed at a cost of about Rs. 100 millions.

This large outlay on the irrigation project, which is being met from the Provincial resources, can only be justified on the basis of increased productivity and increased return by way of land revenue and water rate. At present it is estimated that irrigation facilities are available for approximately half a million acres, but only 88,000 acres were irrigated during the last season. The difference in the two figures represents the enormous loss of productive capacity and of potential revenues. The project can, therefore, become remunerative only if the entire area to which irrigation facilities are extended is developed.

Left to their own resources, the local inhabitants and colonists will take about 18 years to develop the area and to achieve the maximum utilization of the irrigational facilities. In this period the interest charges alone would accumulate to Rs 60 millions, besides the expenditure on the establishment and maintenance of the irrigation system. It was considered necessary, therefore, to set up an independent statutory Authority with adequate resources to synchronize the development of the area with the extension of irrigation facilities; thus ensuring early return on the capital outlay.

The Provincial Government of the Punjab have accordingly enacted legislation to set up a Thal Development Authority to deal with this problem. Authority is empowered to buy tractors, farming machinery, to let out, level and break up land, to construct village link roads, to construct temporary shelters and houses for the colonists which do not at present exist in the tract, and other amenities such as schools, dispensaries, etc., for the inhabitants of the area. The Authority would also be entitled to acquire land which is surplus to the requirements of the local inhabitants in order to resettle refugees, thus relieving pressure in the more congested districts.

The total area covered by the Thal Irrigation Project is nearly two million acres, of which 1½ million is commanded. Leaving aside part of this area to be developed by local enterprise, the Statutory Authority propose to deal with 9 million acres over a period of five years. Approximately 600,000 acres of land will be acquired, 1,000 new villages laid out and built, and 38,000 houses constructed. Recoverable advances will also be given to settlers in the colony. The Thal Development Authority will further provide suitable forests and animal husbandry centres in the area, as also education and health facilities for the settlers.

The Government of Punjab, besides incurring heavy expenditure on the irrigation project for the Thal, have formulated a road plan for the construction of 600 miles of new highway in the Thal area at a cost of nearly Rs. 30 million and have made provision of Rs. 10 million for this purpose in their budget for the 1950-51 financial year. They are also finding the funds necessary for establishment of the aforesaid Authority and such other matter as form a legitimate charge on the abnormal budget of a Province, *e.g.*, schools, dispensaries, etc.

***Undertakers of the Project.***—Government of Punjab.

*Source of Finance.*—Provincial Revenues, Loans and grants received from or through the Central Government.

*Total Estimate Cost.*—Rs 179,424,000.

Internal — Rs. 150,644,000.

External – Rs. 28,780,000.

*Date Begun.*—1949-50.

*Expenditure up to June, 1951.*—Rs. 6,618,000

*Expenditure Remaining after July, 1951.*—Rs. 144026,000.

Internal – Rs. 117,026,000.

External – Rs. 27,000,000.

*Expenditure, 1951-52.*—

Internal – Rs. 45,697,000.

External – Rs. 6,750,000.

*Expenditure, 1952-53.*—

Internal – Rs. 45,539,000.

External – Rs. 6,750,000.

*Date of Completion.*—By end of 1954-55.

*Technical Assistance Required.*—Nil.

*Serial No.* 15.

## RASUL TUBEWELL PROJECT.

*Brief Description of Project (Purpose of Project).*—About 2.35 million acres of good land are lying water-logged in the Rechna and Chhaj Doabs of Punjab. To reclaim part of this area, the Government of Punjab proposed to construct 1,800 tubewells. Power for these tubewells will be available from the Rasul Hydro-Electric Project. The water pumped from these tubewells will be utilized to irrigate about 712,000 acres of country on the one hand and lower the water table to an extent as to land. This project would thus increase the agricultural produce of the render material relief to some of the higher water table areas that have been rendered waste on account of rise of the water table.

*Undertakers of Project.*—Government of Punjab.

*Source of Finance.*—Loan from/through the Central Government.

*Total Estimate Cost.*—Rs. 44,000,000.

Internal—Rs. 18,800,000.
External—Rs. 25,200,000.

*Date Begun.*—1951-52.

*Expenditure up to June, 1951.*—Rs. 6,000,000.

*Expenditure Remaining after July, 1951.*—Rs. 38,000,000.

Internal—Rs. 17,000,000
External—Rs. 21,000,000.

*Expenditure, 1951-52.*—The scheme will be completed during these two years and therefore the balance of the expenditure will be incurred during these years.

*Date of Completion.*—End of 1952-53.

*Technical Assistance Required.*—Nil.

*Serial No.* 16.

## BHAMBHANWALI RAVI BEDIAN LINK.

*Brief Description of Project (Purpose of the Project).*—This scheme aims at the construction of a canal for augmenting the supply of Sutlaj Valley project. Canals of Bahawalpur State and for reclamation of area affected by Thur.

*Undertakers of Project.*—Government of Punjab.

*Total Estimated Cost.*—Rs. 60,000,000.

Internal—Rs. 59,625,000.
External—Rs. 1,375,000

*Date Begun.*—1948-49.

*Expenditure up to June, 1951.*—Rs. 50,000,000.

*Expenditure Remaining after July, 1951.*—Rs. 10,000,000.
External—Nil.

*Expenditure, 1951-52.*—

*Expenditure, 1952-53.*—

*Date of Completion.*—1951-52.

*Technical Assistance Required.*—X.

*Serial No.* 17.

## KHASKI LIFT IRRIGATION.

*Brief Description of Project.*—The object of this scheme is to irrigate an area of ten to twelve thousand acres between Risalpur and Khaski in North West Frontier Province by lift irrigation from the Kabul River.

*Purpose of the Project.*—This scheme will irrigate ten to twelve thousand acres.

*Undertakers of the Project.*—Government of N.W.F.P.

*Source of Finance.*—Development loan from Central Government.

*Total Estimated Cost.*—Rs. 1,258,000.

Internal – Rs. 1,258,000.

External – X.

*Date Begun.*—October, 1948.

*Expenditure up to June, 1951.*—Rs. 858,000.

*Expenditure Remaining after July, 1951.*—Rs. 400,000.

*Expenditure, 1951-52.*—Rs. 500,000.

*Expenditure, 1952-53.*—X.

*Date of Completion.*—1951-52.

*Technical Assistance Required.*—X.

*Serial No.* 18.

## ROD KOHI SCHEME.

*Brief Description of Project.*—It has been considered possible to increase the irrigation facilities in the Dera Ismail Khan District of N.W.F.P. by harnessing the water supply of the hill torrents when they enter the plains in this District. With this end in view it is proposed to construct under this scheme a number of spill weirs for storage of water.

*Purpose of the Project.*—The purpose of the Project is to increase the irrigation facilities in the Dera Ismail Khan district of N.W.F.P.

*Undertakers of the Project.*—Government of N.W.F.P.

*Source of Finance.*—Development Loan from Central Government.

*Total Estimated Cost.*—Rs. 600,000.

Internal – Rs. 600,000.
External – X.

*Date to be Begun.*—1950-51.

*Expenditure up to June, 1951.*—Rs. 375,000.

*Expenditure Remaining after July, 1951.*—Rs. 225,000.

*Expenditure, 1951-52.*—225,000.

*Expenditure, 1952-53.*—X.

*Date of Completion.*—1951-52.

*Technical Assistance Required.*—Nil.

*Serial No.* 19.

## CONSTRUCTION OF TUBE WELLS IN KOHAT DISTRICT

*Brief Description of Project.*—Trial borings have shown that water exists in Kohat and Doaba plains of Kohat District at depths varying from 30 to 60 feet.

*Purpose of the Project.*—The purpose of this project to irrigate approximately 20,000 acres of good land, which at present have no means of irrigation, by means of tube wells. It is proposed to sink 50 tube wells, fitted with electrically driven pumps, to give 75 cusecs. Electricity for the purpose will be available from the Malakand hydro-electric station.

It is anticipated that the scheme will increase the production of food grains in the province by about 7,000 tons per annum.

*Undertakers of the Project.*—Government of N.W.F.P.

Source of Finance.—Loan/Grant from Central Government.

*Total Estimate Cost.*—Rs. 1,000,000.

Internal—Rs. 650,000.
External—Rs. 350,000.

*Date to be Begun.*—1950-51.

*Expenditure up to June, 1951.*—Rs. 100,000.

*Expenditure Remaining after July, 1951.*—Rs. 900,000.

*Expenditure, 1951-52.*—Rs. 500,000.

Internal—Rs. 300,000.
External—Rs. 200,000.

*Expenditure, 1952-53.*—Rs. 400,000.

Internal—Rs. 300,000.
External—Rs. 100,000.

*Date of Completion.*—1952-53.

*Technical Assistance Required.*—Nil.

*Serial No.* 20.

## DRAINAGE OR RECLAMATION OF WATERLOGGED LAND IN MARDAN DISTRICT.

*Brief Description of Project.*—At present 15,000 acres of land are lying water-logged in Mardan District of North West Frontier Province. The whole of this area is good land, capable of intensive cultivation and commanded by existing canal irrigation.

*Purpose of the Project.*—The object of this project is to construct new drains and to improve the existing drains for reclaiming this area. It is expected that this scheme will increase the production of food grains by about 5,000 tons per annum.

*Undertakers of the Project.*—Government of N.W.F.P.

*Source of Finance.*—Grant/Loan from the Central Government.

*Total Estimated Cost.*—Rs. 775,000.

Internal—Rs. 775,000.
External—X.

*Date Begun.*—1949-50.

*Expenditure up to June, 1951.*—Rs. 550,000.

*Expenditure Remaining after July, 1951.*—Rs. 225,000.

*Expenditure, 1951-52.*—Rs. 225,000.

*Expenditure, 1952-53.*—X.

*Date of Completion.*—1951-52.

*Technical Assistance Required.*—Nil.

*Serial No.* 21.

## CONSTRUCTION OF A WEIR AT KURRUMGARHI.

*Brief Description of Project.*—At present water from Kurrum river is diverted into the Bannu Civil Canals by means of temporary head bunds. This is an unsatisfactory arrangement, which often results in failure of crops for lack of proper irrigation facilities.

*Purpose of the Project.*—The purpose of this project is to construct a pucca weir across the Kurrum river at Kurrumgarhi in the North West Frontier Province. This will form the parmanent head from which link channels will be taken on both banks to feed the various canals. The canals will also be remodelled so as to allow considerably greater supply of water. This scheme is expected to improve the irrigation of 133,000 acres of land, and also to bring an additional acreage of 120,000 under cultivation which will increase the production of food grains in N.W.F.P. by 40,000 tons per annum. It is also possible that a portion of the additional land brought under cultivation may be made available for the settlement of the Waziristan tribes.

*Undertakers of the Project.*—Government of N.W.F.P.

*Source of Finance.*—Loan/Grant from the Central Government.

*Total Estimated Cost.*—Rs. 10,000,000.

Internal—Rs. 9,000,000.
External—Rs. 1,000,000.

*Date to be Begun.*—1950-51.

*Expenditure up to June, 1951*—Rs. 1,750,000.

*Expenditure Remaining after July, 1951.*—Rs. 8,250,000.

*Expenditure, 1951-52.*—Rs. 3,000,000.

Internal—Rs. 2,500,000.
External—Rs. 500,000.

*Expenditure, 1952-53.*—Rs. 3,000,000.

Internal—Rs. 2,500,000.
External—Rs. 500,000.

*Date of Completion.*—1953-54.

*Technical Assistance Required.*—X.

*Serial No.* 22.

## POWER PUMP IRRIGATION IN EAST BENGAL.

*Brief Description of Project (Purpose of Project).*—East Bengal gets plenty of rain, but it is not distributed according to the needs of agriculture throughout the year. Most of it comes during the months of June, July, August and September, and the balance, which falls during the winter months, is not sufficient for the Rabi crops of the Province. Consequently, the area under Rabi crops has been reduced to very low levels. Also the yield of the Rabi crops is extremely low and uncertain. To improve the situation, adequate irrigation facilities have to be provided in certain areas of East Bengal. At present, only 375,500 acres are irrigated, out of which 8,220 acres are irrigated by private canals and the remaining 367,280 acres are irrigated from tanks and other surface water. The sources of irrigation in East Bengal are inexhaustible. The Province is intersected by numerous rivers flowing throughout the year, and they flow wastefully into the sea. We have only to make arrangements to lift water from these sources of supply and to make it available for irrigation purposes, instead of allowing this natural wealth to go waste. Pumping-machines are being used in U.S.A. to extend agricultural area rapidly. Following that example, a small scale scheme was introduced in one of the districts of East Bengal, *viz.* Sylhet, under which 22 power pumps are being worked for irrigating "boro" paddy lands. These pumps are hired out to landlords and the hire is realised either in cash or in kind. That scheme has so far worked satisfactorily.

It is now proposed to purchase 100 power pumps every year for a period of five years and to introduce them in the agricultural system of East Bengal, thereby increasing the acreage of "double-cropped lands" and also the yield of Rabi crops, which are principally, boro-paddy, paddy, wheat and sugarcane.

The pumps will be fixed on pontoon flats so that they can be easily carried from place to place. They will be used for about four months in a year and will be shifted to high-level ground for the rest of the year, before the floods start.

The higher capacity pumps will be used on the river banks to grow wheat, after the harvesting of the paddy crop, while the smaller pumps will be worked in bils for the cultivation of the second rice crop.

*Undertakers of Project.*—Government of East Bengal.

*Source of Finance.*—Loan from/through the Central Government.

*Total Estimated Cost.*—Rs. 8,563,000.

Internal—Rs. 4,250,000.
External — Rs. 4,312,500.

*Date to be Begun.*—1950-51.

*Expenditure up to June, 1951* —Rs. 1,712,500

*Expenditure Remaining after July, 1951.*—Rs. 6,850,000.

Internal—Rs. 3,400,000.
External—Rs. 3,450,000.

*Expenditure, 1951-52.*—

Internal—Rs. 850,000.
External—Rs. 862,500.

*Expenditure, 1952-53.*—

Internal—Rs. 850,000.
External—Rs. 862,500.

*Date of Completion.*—1954-55.

*Technical Assistance Required.*—Nil.

*Serial No. 23.*

## CONSTRUCTION OF DAULAT KHAN BUND.

*Brief Description of Project.*—This scheme aims at the construction of a bund along the right bank of Shahabazpur river in Bhola sub-division of Bakerganj District so as to save crops in about 25,600 acres of land in flood season as well as in the rabi season from saline tide water.

*Purpose of Project.*—By this scheme 2,000 tons of extra paddy and rabi crops are expected per year which will help in solving the food problem of East Pakistan.

*Undertakers of Project.*—Government of East Bengal.

*Source of Finance.*—Development Loan from Centre.

*Total Estimated Cost.*—Rs. 660,000.

Internal—Rs. 660,000.
External — X.

*Date to be Begun.*—1950-51.

*Expenditure up to June, 1951* —Rs. 67,000.

*Expenditure Remaining after July, 1951.*—Rs. 593,000.

*Expenditure, 1951-52.*—Rs. 200,000.

*Expenditure, 1952-53.*—Rs. 112,053.

*Date of Completion.*—1953-54.

*Technical Assistance Required.*—Nil.

*Serial No.* 24.

## RE-EXCAVATION OF PAHARIA RIVER

*Brief Description of Project (Purpose of Project.)*—The Depater bil consist of several small bils inter-connected with one another. The Paharia River passes partically through the centre of these bils, and was connected at its upper end with the Arial Khan River. This connection has, however, now been totally cut as a result of which acute damage is done to the crops in times of heavy rainfall, especially during the early parts of the monsoon. The object of this scheme is to link up again the Paharia River with the Arial Khan River, and thus provide adequate drainage in the locality. It is also proposed to make channel of the Paharia River deep enough for navigation. An increase of 713 tons of various crops, including jute, is expected from this scheme.

*Undertakers of Project*. Government of East Bengal.

*Source of Finance*. Development Loan from Centre.

*Total estimated Cost*. Rs. 220,000.
Internal – Rs. 220,000.
External – X.

*Date Begun*. 1948 – 49.

*Expenditure up to June*, 1951 – Rs 200,000.

*Expenditure Remaining after July*, 1951. – Rs. 20,000.

*Expenditure*, 1951 – 1952. – Rs. 40,000.

*Expenditure*, 1952 – 53. – X.

*Date of Completion*. – 1951 – 52.

*Technical Assistance Required*.—Nil .

*Serial No.* 26.

## RE-EXCAVATION OF TALTOLLA KHAL

*Brief Description of Project (Purpose of Project)*.—This scheme is designed to re-excavate the Taltolla Khal in the Dacca District. This Khal is about 10 miles long, and constitutes a very useful and short link for country boats between Tarpassa on the Ganges and Dacca on the Buriganga. At present big boats can ply through it only during the monsoon months, while smaller boats can ply for another couple of months at either end of this period. On the whole the Khal is badly silted up and does not carry enough water for navigation. The object of the scheme is to restore this Khal to efficient navigable condition. Besides increasing the yield of rice and jute by about 1,000 tons it would have many other advantages.

*Undertakers of the Project*. – Government of East Bengal.

*Source of Finance*. – Development Loan from Centre.

*Total Estimated Cost*.—Rs. 270,000.
Internal – Rs. 270,000.
External-- –

*Date Begun* – 1948 – 49.

*Expenditure up to June*, 1951.—Rs. 250,000.

*Expenditure Remaining after July*, 1951.—Rs. 20,000.

*Expenditure*, 1951 – 52. – Rs. 27,000.

*Expenditure*, 1952 – 53 —

*Date of Completion*.—1951 – 52.

*Technical Assistance Required*.—Nil.

*Serial No.* 27.

## PLANT PROTECTION IN EAST BENGAL

*Brief Description of Project.*—Under this scheme, it is proposed to purchase and stock spraying and dusting equipment and appliances as well as adequate quantites of insecticides, fungicides, etc, in different centres suitable over the entire province of East Bengal so that there may be no difficulty in taking plant protection measures in case of any emergency. The plant protection work will be carried out by the normal staff of the Department of Agriculture.

*Purpose of Project.*—It has been estimated that about 20 per cent. of the food crops are lost in East Bengal because of the insects, pests, bacterial diseases and weeds. This scheme will be able to avoid some portion of this damage.

*Undertakers of Project.*—Government of East Bengal.

*Source of Finance.*—Development Loan from the Central Government

*Total Estimated Cost.*—Rs.175,000.
Internal – Rs.75,000.
External – Rs.100,000.

*Date to be Begun.*—1950 – 51.

*Expenditure after June, 1951.*—Rs. 25,000.

*Expenditure Remaining after July, 1951.*—Rs.150,000
Internal – Rs.70,000.
External – Rs.80,000.

*Expenditure, 1951 – 52.*—Rs.30,000.
Internal – Rs.10,000.
External – Rs.20,000.

*Expenditure, 1952 – 53.*—Rs.35,000.
Internal – Rs.15,000.
External – Rs.20,000.

*Date of Completion.*—1954 – 55.

*Technical Assistance Required.*—Nil.

*Serial No.* 28

## RE-EXCAVATION OF KALAPANI KHAL AND TWO DRAINAGE CUTS

*Brief Description of Project (Purpose of Project).*—Under this scheme it is proposed to re-excavate the *Kalapani Khal* and two drainage cuts from *Teliani* and *Tenacharai Bil* so as to improve the drainage in an area of about 25 square miles. Every year a large portion of this area suffers from drainage congestion and consequent damage to standing crops. This scheme will thus be able to improve the drainage conditions of this area. It is expected that the scheme will raise the production of food grains in East Bengal by about 5,000 tons per annum.

*Undertakers of Project.*—Government of East Bengal.

*Source of Finance.*—Grant / Loan from / through the Central Government

*Total Estimated Cost.*—Rs.795,000.
Internal – All this will be internal expenditure.

*Date Begun.*—1949 – 50.

*Expenditure up to June, 1951.*—Rs.320,000.

*Expenditure Remaining after July, 1951.*—Rs. 475,000.

*Expenditure, 1951 – 52.*—Rs.280,000.

*Expenditure, 1952 – 53.*—Rs.195,000.

*Date of Completion.*—By end of 1952 – 53.

*Technical Assistance Required.*—Nil.

*Serial No.* 30

## CONSTRUCTION OF LOWER SIND BARRAGE IN PAKISTAN.

*Brief Description of Project—Purpose of Project.*—Lower Sind area at present is being irrigated by a number of inundation canals. These canals get their supply of water during the inundation season, *i.e.* April to September, but supplies depend entirely on the levels in the river, which are uncertain. Frequently the supplies are deficient during the crucial period and crops have to be saved by giving only maintenance doses, which results in low yields. The supplies have now become more precarious owing to the construction of a number of irrigation projects in the upper reaches of the Indus in Sind and the Punjab.

In order to ensure adequate supplies to the areas already under cultivation and to expand cultivation further, a barrage, called the Lower Sind (Kotri) Barrage, is being constructed across the river Indus.

The barrage will be situated $4\frac{1}{2}$ miles above Kotri, a railway junction on the main railway line from Karachi to Lahore and Peshawar. Two feeders, namely Pinyari and Fuleli on the left bank, and one feeder, namely Kalri Baghar on the right bank, will take off above the Lower Sind Barrage, which will feed the existing canals.

The main barrage will consist of 44 spans of 60 ft. each and will carry 28 ft. road bridge of R.C.C. decking with 20 ft. roadway and two footpaths of 8 ft., and a gate bridge supported on steel trestle for the operation of steel gates. There will be four under-sluices in the right bank and five in the left bank for scouring the approach channels. In the garrage, one span (sixth from the left side) will be a lock span to facilitate river traffic. There will be two ladders, one near each divide wall.

The right and left bank regulator will consist of 6 and 18 spans of 24 ft. each, respectively, and their construction will be more or less similar to that of the barrage.

The canals taking off the barrage will be all feeders to feed the existing canals and the latter will be remodelled and extended as and where necessary to irrigate the areas which were not previously commanded by the existing canals.

The attached statement No. 1 shows the comparative statement of present and anticipated production of grain by crops. In this statement the figures pertaining to existing conditions are the actuals and those anticipated are based on the experience gained from the Sukkur Barrage Irrigation Project which has been functioning for the last 18 years. The attached statement No. 2 shows the present and the ultimate anticipated revenue from the project.

*Undertakers of Project.*—Government of Sind.

*Source of Finance.*—Loan from/through the Central Government.

*Total Estimated Cost.*—Rs. 201,951,000.
Internal—Rs. 169,293,000.
External—Rs. 32,658,000.

*Date Begun.*—1946-47.

*Expenditure up to June,* 1951.—Rs. 33,347,000.

*Expenditure Remaining after July,* 1951.—Rs. 168,604,000.
Internal—Rs. 163,627,000.
External—Rs. 4,977,000.

*Expenditure,* 1951-52.—Rs. 39,919,300.
Internal—Rs. 37,012,300.
External—Rs. 2,907,000.

*Expenditure,* 1952-53.—Rs. 37,500,000.
Internal—Rs. 36,630,000.
External—Rs. 870,000.

*Date of Completion.*—Planned for completion by 1959-60, but work is being expedited to complete it three years earlier, *i.e.* by end of 1956-57.

*Technical Assistance Required.*—Nil.

## STATEMENT No. I

| Crops. | Present Cultivation. | | | Anticipated Cultivation. | | | Increased in Cultivation. | | | Earning of the farmer per acre. | | Quantity of grain which will be consumed in local market. | Quantity of grain which will be available for export. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acreage under cultivation. | Yield per acre. | Quantity produced. | Acreage under cultivation. | Yield per acre. | Quantity produced. | Acreage under cultivation | Yield per acre. | Quantity produced. | Gross. | Net. | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | *Acres* | *Tons* | *Tons* | *Acres* | *Tons* | *Tons* | *Acres* | *Tons* | *Tons* | Rs. | Rs. | *Tons* | *Tons* |
| 1. Rice .. .. | 4,60,400 | 0.29 | 1,33,516 | 16,82,700 | 0.36 | 6,05,772 | 12,22,300 | .. | 4,72,256 | 50 | 40 | 98,700 | 5,07,072 |
| 2. Other kharif .. | 64,800 | 0.29 | 18,792 | 79,700 | 0.36 | 28,692 | 14,900 | .. | 9,900 | 40 | 30 | 45,400 | 16,708 |
| 3. Rabi irrigated .. | .. | .. | .. | 2,05,400 | 0.36 | 73,944 | 2,05,400 | .. | 73,944 | 60 | 45 | .. | .. |
| 4. Rabi bosi .. | 64,000 | 0.25 | 16,000 | 1,07,800 | 0.25 | 26,950 | 43,800 | .. | 10,950 | 40 | 30 | 43,428 | 57,466 |
| 5. Dubari .. .. | 29,000 | 0.11 | 3,190 | 1,68,300 | 0.11 | 18,513 | 1,39,300 | .. | 15,323 | | .. | 9,870 | 8,643 |
| Total .. | 6,18,200 | .. | 1,71,498 | 22,43,900 | .. | 7,53,871 | 16,25,700 | .. | 5,81,373 | .. | .. | 1,97,398 | 5,56,473 |

## STATEMENT No. 2

| Year. | Sum at charge at the beginning of the year. | Interest for the whole year 3 5/8 % | Interest charges for the year. | Total of cols. 2, 3 and 4. | Net increase in revenues. | Percentage return col. 6 × 100 col. 5. |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| First year after construction .. | 27,71,07,700 | 1,00,45,200 | 17,15,300 | 28,98,68,200 | 21,28,900 | 0.74 |
| 10 years after construction .. | 29,88,71,400 | 1,88,34,100 | 27,15,300 | 31,24,20,800 | 29,42,600 | 0.94 |
| 20 years after construction .. | 37,53,65,900 | 1,36,07,000 | 27,15,300 | 39,16,88,200 | 61,23,100 | 1.5 |
| 30 years after construction .. | 45,29,06,100 | 1,64,17,800 | 27,15,300 | 47,20,39,200 | 81,95,900 | 1.74 |
| 40 years after construction .. | 54,09,63,600 | 1,96,69,900 | 27,15,300 | 58,32,88,600 | 99,74,700 | 1.77 |

*Serial No.* 31.

## ABBASIA COLONIZATION SCHEME.

*Brief Description of Project.*—Under this project, irrigation facilities are to be provided for about 260,000 acres of land in the Bahawalpur State. The work is proposed to be carried out in the stages :—

*Stage* (1)—Opening up of about 112,000 acres on the Abbasia canal and its distributaries.

*Stage* (2) Will cover an area of about 150,000 acres on the main Abbasia canal.

*Purpose of the Project.*—Colonization of the area under Stage (1) has practically been completed while the work under Stage (2) is proposed to be taken up in the financial year 1951-52. This project relates to Stage (2).

*Undertakers of Project.*—Government of Bahawalpur State.

*Source of Finance.*—Loan from/through the Central Government.

*Total Estimated Cost.*—Stage (2) is estimated to cost Rs. 18 million.

Internal—Rs. 17 million.
External—Rs. 1 million.

*Date Begun (or to be Begun).*—Stage (1) was begun in 1946-47 and is practically complete. Stage (2) is expected to be begun in the financial year 1950-51.

*Expenditure up to June, 1951.*—Nil on Stage (2).

*Expenditure Remaining after July, 1951.*—Rs. 18 million.

Internal—Rs. 17 million.
External—Rs. 1 million.

*Expenditure, 1951-52.*—Rs. 6 million.

Internal—Rs. 5.5 million.
External—Rs. .5 million.

*Expenditure, 1952-53.*—Rs. 6 million.

Internal—Rs. 5.5 million.
External—Rs. .5 million.

*Date of Completion.*—1953-54.

*Technical Assistance Required.*—Nil.

*Serial No.* 32.

## MACHINERY FOR THE CONSTRUCTION OF ESSENTIAL WORKS OF THE PUBLIC WORKS DEPARTMENT OF SIND.

*Brief Description of Project* (*Purpose of Project*).—There are in Sind about 981 miles of bunds, stretching along both banks of the Indus, varying in height from a minimum of about 5 ft. to a maximum of nearly 25 ft.; 6,473 miles of barrage canals with discharges of the order of five cusecs in the Eastern Nara Canal, with a total quantity of earthwork done initially of 6,280 million c. ft. and since augmented; 2,004 miles of inundation canals; 3,842 miles of pucca roads, with the riding surface in brick asphalt or cement concrete; and about 3,858 miles of fair weather roads.

Huge quantities of silt, sand and clay are required to be handled every year to make bunds safe against leaks and overtopping by the ever-increasing flood levels; to ensure adequate waterway in the channels to enable them to pass the designed discharges either by clearance of sections, or raising and strengthening of banks; and provide more mileage and better riding surface of roads.

To give an idea of the colossal quality of earthwork done each year, figures of actual expenditure incurred during the various periods on various types of irrigation works involving handling of earthwork have been collated in the attached Table I. It will be seen from footnote No. II under that Table, that the expenditure incurred on raising and strengthening of banks and bunds and slit clearance individually amounting to not more than Rs. 5,000 has not been taken into consideration. Such an expenditure is bound to be very substantial. But the amounts even as they stand are very large, the average annual expenditure for the four different periods 1935-40, 1940-45, 1945-50 and 1950-55 being Rs. 751,800, Rs. 3,416,600, Rs. 5,269,800 and Rs. 4,243,000 respectively.

Although the annual expenditure during the different periods has been varying, the quantities of earthwork done during these periods has been very nearly constant. The variation in expenditure has been due to varying rates at which work was done.

Adopting the figures of expenditure of 1945-50 as representing reasonable averages, the approximate earthwork to be done annually has been worked out in the attached Table II. The aggregate quantity works out to 283.67 million c. ft. This is the irreducible minimum that has to be done and the effect of postponing this work may be very hazardous.

Even assuming that bunds would not for the next few years require raising and strengthening to the extent shown in Tables I and II, there will be sufficient earthwork to be done on the inundation canals by the machinery proposed to be purchased. These canals depend on the water level in the upper regions of the Indus River. This water level is going down day by day, and with the completion of the projects now under construction in Bharat it is bound to further go down considerably. To provide for adquate flow of water in the inudation canals, it is necessary, therefore, to modify the canals considerably.

Considerable work is foreshadowed by the proposed project of diversion of flood water through the Eastern Nara Valley and the raising and strengthening of the flood protective bund in the west of Sind.

All this work is essential for Sind to prosper economically without fear of constant recurring floods, etc. For that reason the estimate for the next five years' period earthwork to the tune of 320 million c. ft. will be required to be done is quite conservative.

For handling this huge quantity of nearly 300 million c. ft. of earthwork, manual and donkey labour has been employed in the past at very uneconomical rates, with the additional disadvantage of poor quality of work. This is reflected in rising cost of ordinary repairs and progressive deterioration of irrigation channels and roads. Both to economise and to modernize the methods of work, the Government of Sind have decided to use machinery for all earthwork in future. Irrigation, agriculture and transportation are so closely interrelated and interdependent that a disequilibrium would retard the general progress. It is, therefore, intended that while putting the irrigation system in good order, good motorable roads, connecting all the centres of trade for quick and easy transport of agricultural produce should also be provided.

For the purpose outlined in the preceding paragraph the machinery listed in statements Nos. 1 to 14, inclusive of spare parts, will be required and will be employed on the following works :—

(i) Construction, and raising and strengthening of river bunds or levees and torrential rain protective bunds.

(ii) Proper upkeep and improvement of all irrigation channels, whether barrage or non-barrage.

(iii) Completion of roads, construction of which is already in progress.

(iv) Maintenance of roads of all types.

*Undertakers of Project.*—Government of Sind.

*Sources of Finance.*—Loan from/through the Central Government.

*Total Estimated Cost.*—Rs. 21,906,000.
External – Rs. 7,298,000.
External – Rs. 14,608,000.

*Date to be Begun.*—Propose to begin in 1950-51 ; subject to availability of loan from International/Commonwealth sources.

*Expenditure up to June, 1951.*—Negligible.

*Expenditure Remaining after July, 1951*—Rs. 21,906,000.
Internal – Rs. 7,298,000.
External – Rs. 14,608,000.

*Expenditure, 1951-52.*—Rs. 11,824,000.
Internal – Rs. 3,940,000.
External – Rs. 7,884,000.

*Expenditure, 1952-53.*—Rs. 5,774,000.
Internal – Rs. 1,924,000.
External – Rs. 3,850,000.

*Date of Completion.*—Five years after availability of loan. Say 1955-56.

*Technical Assistance.*—Nil.

## TABLE I

### STATEMENT SHOWING EXPENDITURE INCURRED ON THE FOLLOWING ITEMS DURING THE PERIODS 1935-40 TO 1949-50

| Name of Items. | 1935-40. | 1940-45. | 1945-50. | Probable for 1950-51. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 1. Construction of new bunds, *i.e.*, Loop Bunds .. .. .. .. | 11,58,000 | 48,82,000 | 52,40,000 | 6,40,000 |
| 2. Raising and strengthening existing bunds.. | 3,04,000 | 52,78,000 | 49,66,000 | 19,30,000 |
| 3. Raising and strengthening flood protective bunds in the west of Sind .. .. | 78,000 | 12,59,000 | 31,46,000 | 74,000 |
| 4. Silt Clearance :— | | | | |
| (*a*) Barrage canals .. .. .. | 9,80,000* | 10,78,000 | 16,07,000 | 3,00,000 |
| (*b*) Inundation canals .. .. | 12,30,000* | 19,85,000 | 37,78,000 | 6,20,000 |
| 5. Giving new cuts or feeders to inundation canals .. .. .. .. | .. | 5,52,000 | 13,14,000 | .. |
| 6. Raising and strengthening of banks of :— | | | | |
| (*a*) Barrage canals .. .. .. | .. | 14,75,000 | 59,20,000 | 6,29,000 |
| (*b*) Inundation canals‡ .. .. | .. | 5,79,000 | 3,78,000 | 50,000 |
| Total .. .. .. | 37,59,000 | 1,70,83,000 | 2,63,49,000 | 42,43,000 |
| Average, Annual .. .. | 7,51,800 | 34,16,600 | 52,69,800 | .. |

*Expenditure on new cuts or feeders was not maintained separately up to the year 1940-41, as the same was met with from ordinary repair grant, hence expenditure for 1935-40 cannot be given.

‡Expenditure on raising and strengthening banks of canals was presumably met with from ordinary repairs grant up to 1941-42, and therefore expenditure for the period 1935-40 cannot be given.

*Note* 10.—The expenditure figures for 1947-48, 1948-49 and 1949-50, are not available at this stage, hence final grants for 1947-48, 1948-49 and budget figures for 1949-50, have been taken for the purpose.

*Note* 11.—Expenditure on the work raising and strengthening banks of canals and bunds shown above represents expenditure, only on works cost of which individually is either Rs. 5,000 or more. Works costing less than Rs. 5,000—are debited to the ordinary maintenance and repairs, figures of which cannot be given.

## TABLE II

### EARTHWORK TO BE DONE IN ESSENTIAL WORKS

| Name of Work. | Expenditure in lacs Rs. | Rate per 1,000 cu.ft | Quantity of earthwork in lacs cu. ft. |
|---|---|---|---|
| 1. Construction of loop bunds.. .. .. .. | 10.48 | 25 | 419.20 |
| 2. Raising and strengthening of river bunds .. .. | 9.93 | 26 | 9.93 |
| 3. Raising and strengthening of flood protective bunds at the foot of hills in the west of Sind .. .. .. | 6.29 | 22 | 286.00 |
| 4. Silt clearance of barrage and inundation canals .. | 10.77 | 15 | 718.00 |
| 5. New cuts or feeders to inundation canals .. .. | 2.63 | 20 | 131.50 |
| 6. Raising and strengthening of banks of barrage and inundation canals.. .. .. .. .. | 12.60 | 14 | 900.00 |
| | | Total .. | 2,464.63 |

L.T.(1) C/85-13

## STATEMENT No. 1

STATEMENT SHOWING DETAILS OF (*a*) EARTH-MOVING MACHINERY OF (i) U. K. ORIGIN ; (ii) U. S. A. ORIGIN, REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH BUND WORKS (IRRIGATION AND FLOOD CONTROL) DEVELOPMENT SCHEME ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D's Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | | | *Tractor with Scraper.*—Track type, diesel engine having draw bar H.P. of 120 to 130 equipped with suitable gears for approximated speed adjustments from 2 to 5 miles per hour both in forward and reverse motion, coupled by means of power control with scrapers having approx. 12 cu. yards struck capacity mounted on pneumatic tyres and cable operated. | Earthwork | 18—Other Revenue Expr., etc.<br>XVII—Irrigation, special tools and plant. | 12 | Rs. in lakhs 1.2 | Rs. in lakhs 14.40 | Government of Sind, P.W.D. |
| 2 | | | *Bulldozer.*—Track type, diesel engine having draw bar H.P. of 120—130 suitable gears for approx. speed adjustments from 2 to 5 miles per hour both in forward and reverse motion, equipped with cable controlled angling blade 12 ft. long by 4 ft. high ; maximum lift above ground 4 ft. and unlimited below ground level. | Do. | Do. | 4 | 0.76 | 3.04 | Do. |
| 3 | | | *Ripper.*—Mounted on steel drum wheel and capable of penetration upto 2½ft. fitted with replaceable tooth points and cable operated. | Ploughing bund seat and grabbing tree roots. | Do. | 4 | 0.13 | 0.52 | Do. |
| 4 | | | *Grader.*—Diesel driven, equipped with 100 H.P. engine on pneumatic tyres, 12 ft. long blade, capable of running up to 29 m.p.h., power operated controls, 90° tank cutting angle, full revolving circle. | Dressing slopes and top of bunds. | Do. | 2 | 0.54 | 1.68 | Do. |

STATEMENT No. 1—*Contd.*

| Serial No. | Indentor's Indent No. | D.G.S. & D's Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | Rs. in lacs | | |
| 5 | | | *Trucks.*—Gasoline, capable of transporting stores and material up to 3 tons, heavy duty with auxiliary gear for four wheel. | Transport of materials. | 18 and XVII.—Special tools and plants. | 4 | 8.15 | 0.60 | Government of Sind, Public Works Department. |
| 6 | | | *Crane.*—High speed diesel driven portable mounted preferably on trucks and capable of lifting 3 tons at 45° jib angle and full circle revolution ; jib length approx. 25 ft. | Repairs. | | 4 | 0.25 | 1.00 | Do. |
| 7 | | | *Sheep Foot Roller.*—Having two drums equipped with teeth 4 in. by in. squared to be handled by tractors. | Compacting earth. | | 4 | 0.09 | 0.36 | Do. |
| 8 | | | *Welding Plant.*—Double operator diesel engine portable in steel frame completely enclosed and mounted on steel drum wheels. Engine should be radiator cobled, electrically starting coupled with 15 kW. generating capable of continuous welding current up to 200 amps., variable from 25 amps. upwards in suitable stages. | | | 2 | 0.18 | 0.36 | |
| 9 | | | *Compressor, Air.*—Portable, mounted on trolleys with steel drum wheels, capable of delivering 25 cu. ft. for min. at 100 sq. in. pressure, driven by M.S. diesel engine, preferably handle started and enclosed type. | Essential field repairs. | | 2 | 0.08 | 0.16<br>21.52 CF | |
| 10 | | | *Field Workshop.*—Mobile, mounted on heavy duty petrol driven truck and equipped with :— | Carrying out essential field repairs. | XVII | 2 | 1.5 | 3.00 | Do. |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|

*Specification of Mobile Workshop Equipment. Mounted on Truck.*

1. Crane
2. Power supply.
3. Electrical equipment.
4. Welding accessories.
5. Hydraulic equipment
6. Carpenters' tools
7. Plumbers' tools
8. Air compressor
9. Pneumatic tools
10. Radial drill press
11. Blacksmiths' tools
12. Electric powered tools
13. Lathe and lathe accessories
14. Shop tools
15. Lubrication equipment

| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | *Lighting Sets.*—High-speed diesel engine, water cooled, coupled to 15 kw. generator at 230/250 volts at 50 cycles, mounted on petrol-driven trucks, complete with set of six reflectors, bulbs and wiring, complete. | Working at night | 2 | 0.18 | 0.36 | Government of Sind, Public Works Department. |
| 12 | Housing arrangements, mobile, for staff, *viz.*, tents and furniture, wherever living quarters are not available. | Accommodation for staff | 4 | 0.057 | 0.30 | |
| | | | | | 25.18 | |

STATEMENT No. 2.

STATEMENT SHOWING DETAILS OF (*a*) EARTH-MOVING MACHINERY—(i) U. K. ORIGIN ; (ii) U.S.A. ORIGIN—REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH IRRIGATION, SILT CLEARANCE, INUNDATION CANALS DEVELOPMENT SCHEME, ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D's Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | Rs. in lacs | | |
| 1 | | | *Tractor.*—Six cylinder diesel engine of approximately 120 drawbar H.P., speed 6 m.p.h. in top gear, equipped with mechanical starter, upholstered drivers and ca rry all scraper of 12 cu. yards *struck* c apacity completed to it by power control unit. | Earthwork in 50 ft. clay and silty soil. | XVII.—Special tools and plant. | 6 | 1.0 | 6.0 | Government of Sind, Public Works, Department. |
| 2 | | | *Dragline Excavator.*—Truck type fitted with preferably low speed diesel engine of 200 H.P. Hydraulically operated heavy boom 90 ft., reducible to 70-80 ft. Each machine to have 4 buckets of 3 cu. yard and ½ cu. yard capacity, both dip as well as grab type. Each to be provided with at least two lip plates attachable to the buckets for silt clearance under water. | Do. | Do. | 2 | 2.42 | 4.84 | Do. |
| 3 | | | *Bulldozer.*—Six cylinder diesel engine of approximately 120 drawbar H.P., complete with bulldozer blade, speed 6 m.p.h. in top gear in fourth gear. Blade should be 12 ft. high, maximum left above ground 4 ft. and unlimited below ground level. | Do. | Do. | 2 | 0.76 | 1.52 | Do. |
| 4 | | | *Trucks.*—Diesel driven, capacity of carrying load up to 10 tons with adjustments for auxiliary four-wheel drive, Heavy duty. | Do. | Do. | 2 | 0.54 | 1.08 | Do. |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| 5 | | | *Welding Plate.*—Double operator diesel engine driven generator set, completely enclosed, radiator cooled engine mounted on steel drum wheels trolley. Generator capable of 15 kW. output with continuous welding up to 200 amps' | Essential repairs, field. | XVII.—Special tolls and plant. | 2 | 0.18 | 0.36 | Government of Sind, Public Works Department. |
| 6 | | | *Compressors, Air.*—Vertical, single acting, single stage air-cooled enclosed type. Capacity 25 cu. ft. per minute with maximum pressure of say 100 lb. per sq. in. Mounted on wheels (steel drum type), driven by H. S. diesel engine, preferably handle Started. | Essential field operations. | Do. | 2 | 0.08 | 0.16 | Do. |
| 7 | | | *Lighting Set, Portable.*—H. S. diesel engine driven, coupled to 15 kW. generator at 230/250 volts and 50 cycles, mounted in petrol driven truks, complete with set of six reflectors, necessary bulbs, etc. | Working at night | Do. | 2 | 0.25 | 0.50 | Do. |
| 8 | | | *Workshop, Field.*—Mobile, mounted on heavy duty petrol or diesel driven truck and equipped with one 8-ft. bed and 10-in. centre precision lathe; one drilling machin capable of drilling holes from ¼ in. to 1 in. two bench vices fitted on tables and one blacksmith's forge, complete with necessary tools and accasions, etc., as listed in Statement No. 1 | Carrying out essential field repairs. | Do. | 2 | 1.5 | 3.00 | Do. |
| | | | *Tents.*—For housing the staff whenever living accommodation not available. | Accommodation for staff. | Do | 2 | 0.075 | 0.15 | Do. |
| | | | | | | | Total | 17.61 | |

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## STATEMENT No. 3

STATEMENT SHOWING DETAILS OF (*a*) EARTH-MOVING MACHINERY OF (i) UNITED KINGDOM ORIGIN; (ii) U.S.A. ORIGIN, REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH IRRIGATION (SILT CLEARANCE OF SMALL PERENNIAL CHANNELS), DEVELOPMENT SCHEME, ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D's Indent No. | Description of Stores. | Actual use to which the stores will be put to to guide supply. | Accounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | Rs. in lacs. | | |
| 1 | | | *Dragline Excavator*.—Mounted on caterpillar fitted with diesel engine, boom 50 ft. and fitted with grab bucket in sizes from $\frac{3}{8}$ to $1\frac{1}{2}$ cu. yard. | Excavation of silt. | 18—Other Revenue Expr., etc,. XVII—Irrigation special tools and plant. | 4 | 0.58 | 2.32 | Government of Sind Public Works Department. |
| 2 | | | *Dragline Excavator*.—Mounted on caterpillar fitted with diesel engine, boom 20 ft. and fitted with grab bucket in sizes ranging from $\frac{1}{4}$ to 1 cu. yard. | Do. | Do. | 2 | 0.5 | 1.00 | Do. |
| 3 | | | *Trucks, Diesel*.—10 capacity .. | Haulage of material. | Do. | 3 | 0.54 | 1.62 | Do. |
| 4 | | | *Welding Plant—Electric and Portable*.—Double operator diesel engine-driven welding sets, in steel frame with canopy and side screens, etc. | Welding .. | Do. | 1 | 0.18 | 0.18 | Do. |
| 5 | | | *Field Workshop*.—As in item 10 of Statement No. 1. | | Do. | 1.5 | 1.50 | | Do. |
| 6 | | | *Tents* .. .. .. .. | Housing staff .. | Do. | 0.075 | 0.15 | | Do. |
| | | | | | | Total .. | 6.77 | | |

STATEMENT No. 4

STATEMENT SHOWING DETAILS OF (*a*) EARTH-MOVING MACHINERY OF (i) UNITED KINGDOM ORIGIN, (ii) U.S.A. ORIGIN, REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH IRRIGATION (SILT CLEARANCE OF BARRAGE CANALS), DEVELOPMENT SCHEME ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D's Indent No. | Description of Stores. | Actual use to which the stores will be put to to guide supply. | Accounting unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | Rs. in lacs. | | |
| 1 | | | *Dragline Excavator.*—Track type fitted with diesel engine, preferably low speed, and boom length 30 ft., and fitted with both grab and dip, buckets, and also lip plates (at least two with each machine), attachable to dip bucket, hydraulically operated. | Excavation of silt | 18—Other Revenue Expr., etc. XVII—Irrigation special tools and plants. | 4 Nos. | 0.58 | 2.52 | Government of Sind Public Works Department. |
| 2 | | | *Dragline Excavator.*—Track type, fitted with diesel engine, preferably low speed and fitted with both grab and dip buckets. Boom length 20 ft., full revolution, equipped with lip plates as above. | Do. | Do. | 2 Nos. | 0.60 | 1.20 | Do. |
| 3 | | | *Trucks, Diesel.*— .. .. | Haulage of material. | Do. | 5 Nos. | 0.54 | 1.62 | Do. |
| 4 | | | *Workshop, Mobile.*—As in item 10 of Statement. | Maintenance of machines. | Do. | 2 Nos. | 1.5 | 3.00 | Do. |
| 5 | | | *Welding Plant.*—Double operator diesel engine-driven welding sets in steel frame with canopy and side screens, radiator, etc., generator being capable of continuous hand welding current of 200 amps., variable from 25 amps. upwards in suitable stages. Mounted on four wheels, steel spring back. | Essential field repairs. | Do. | 2 Nos. | 0.18 | 0.36 | Do. |
| 6 | | | Mobile housing arrangement .. | Housing staff .. | Do. | 2 sets | 0.075 | 0.15 | Do. |
| | | | | | | | Total .. | 8.65 | |

## STATEMENT No. 5

STATEMENT SHOWING DETAILS OF (*a*) EARTH-MOVING MACHNERY OF (i) UNITED KINGDOM ORIGIN; (ii) U. S. A. ORIGIN, REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH BUNDS AND CANALS (WORK SHOP MACHINERY) DEVELOPMENT SCHEME, ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D's Indent No. | Description of Stores. | Actual use to which the stores will be put to to guide supply. | Accounting unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | | | *Lathe, Gap Bed.*—Precision, electrically-driven high speed, self-acting, surfacing, screw cutting with standard equipment, having 4 ft.-5 ft. bed swing-over gap 16 in. by 4 in., hold in spindle 1 in., and 6 in., centre. | Workshop for heavy repairs. | 18—Other Revenue Expr., etc. XVII—Irrigation special tools and plants. | 1 | 0.20 | 0.20 | Government of Sind Public Works Department. |
| 2 | | | *Lathe, Gap Bed.*—Heavy duty belt-driven sliding head, 20 ft.-25ft. bed, 12in. centres, swing-over gap 36 in., complete with chuck (independent), and face plate and counter shaft. | Do. | Do. | 1 | 0.14 | 0.14 | Do. |
| 3 | | | *Lathe, Capstan*, 6ft. bed and 5½ in. centre. | Do. | Do. | 1 | 0.12 | 0.12 | Do. |
| 4 | | | *Lathe.*—Sliding bed 8 ft-9 ft., 9 in. centres. 28 in. by 8 in. swing-over gap, and spindle hole 21/16 in. | Do. | Do. | 1 | 0.35 | 0.35 | Do. |
| 5 | | | *Universal Milling Machine.*—Motor-driven with standard equipment and and having following specifications:—<br>(1) 48 in. by 12 in. table.<br>(2) Longitudinal feed 42 in.<br>(3) Gross feed 12 in.<br>(4) Vertical adjustment of table 20 in. | | | | | | |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| 6 | | | *Power Hammer.*—Pneumatic, 5 cwt. and clear space type. | Workshop for heavy repairs. | 18—Other Revenue Expr., etc. XVII—Irrigation, special tools and plants. | 1 | 0.20 | 0.20 | Government of Sind Public Works Department. |
| 7 | | | Cupola, 2-ton, to be fabricated in workshop. | Do. | Do. | 1 | 0.08 | 0.08 | Do. |
| | | | | | | | | 1.44CF | |
| 8 | | | *Grinding Machine.*—Universal, high speed, heavy duty, electrically-driven, automatic cross feed, swing-over table 12 in., swing-over splash guard 9½ in., maximum diameter, admitting back rests, 4½ in., capable of taking 12 in. by 1½ in. grinding wheel. | Do. | Do. | 1 | 0.15 | 0.15 | Do. |
| 9 | | | *Boring Machine.*—Boring, drilling and slidding machine, 12 ft. bed and 9 in. centres. | Do. | Do. | 1 | 0.25 | 0.25 | Do |
| 10 | | | *Electric Furnace.*—For heat treatment and casting work with arrangement of heat regulation up to 2,000CF., complete with standard equipment for melting 112 of cast iron. | Do. | Do. | 1 | 0.20 | 0.20 | Do. |
| 11 | | | *Diesel Engine.*—30 H.P. high speed for running W-S to act as stand-by. | Do. | Do. | 1 | 0.12 | 0.12 | Do. |
| 12 | | | *Shapers.*—Independent drive, 16 in. by 12 in. table, 20-in. longitudinal feed and 12-in. transverse feed, vertical movement 12 in. | Do. | Do. | 1 | 0.08 | 0.08 | Do. |
| 13 | | | *Tools* .. .. .. | Do. | Do. | Lump sum | 0.20 | 0.20 | Do. |
| | | | | | | | | Rs. 2.44 lacs. | |

## STATEMENT No. 6.

STATEMENT SHOWING DETAILS OF (*a*) EARTH-MOVING MACHINERY—(i) UNITED KINGDOM ORIGIN (ii) U.S.A. ORIGIN—REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH CONSTRUCTION AND MAINTENANCE OF ROADS, POST-WAR CONSTRUCTION SCHEMES.

| Serial No. | Indentor's Indent No. | O.G.S. & D.'s Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Acccounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | | | *Tractors (Track Type).*—Draw bar horse-power 113, 6 cylinder, 4 cycle, water-cooled high speed diesel engine. Bore and stroke 5¾ in. by 8 in. by R.P.M. 950 at full load, equipped with absorbent type fuel filter, dual lubricant oil filter and oil bath, air cleaner. | Earthwork .. | 18—Other Revenue expenditure, etc. | 20 | 0·50 | 10 00 | Government of Sind. Public Works Department. |
| 2 | | | *Tractor (Tyre Wheels Type).*—Draw bar horse-power 100, 6 cylinder, 4 cycle, water-cooled high speed diesel engine. Bore and stroke 4½ in., by 5½ in., R.P.M. 1880 at full load, equipped with absorbent type fuel filter, dual lubricating oil filter and oil bath, air cleaner, independent start. | Do. | XVII—Irrigation. Special tools and plants. Do. | 4 | 0·50 | 2·00 | Do. |
| 3 | | | 2. *Grader Motor.*—48 h.p., 6 cylinder, 4 cycle, water-cooled high speed diesel engine. Bore and stroke 4½ in. by 5½ in., R.P.M. 1,800 at full load. Independent start. Mechanical power operated control. Blade size 12 ft. by 24 ft. by ⅜ in., blade base 8 ft. by 2 in., lift above ground 18 in., minimum lift adjustment ⅛ in., side shift 36 in., right or left, maximum bank cutting angle 90°, maximum shoulder reach 7 ft. 4 in. Fitted with power-operated worm and gear type lifting. Austin Western Motor Graders. Western 99. | Grading road surface. | Do. | 5 | 0·50 | 12,00 BF 2·50 | Do. |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| 4 | | | 3. *Trucks (Diesel).*—Engine, cylinder diesel engine, 200 H.P. at 2,600 R.P.M. Torque 463 ft. lb. at 125 R.P.M. Starting and lighting system 12-volt, voltage and current control. Generator capacity 40 amps. Solenoid type starter with push button on dash. Two 6-volt batteries connected in series. Dash board : speedometer, ammeter, oil-pressure gauge, fuel gauge, heat indicator and air pressure gauge. | Haulage of materials. | 18.—Other Revenue expenditure, etc. XVII.—Irrigation. Special tools and plants. | 20 | Rs. in lacs 0·25 | Rs. in lacs 5·00 / 19·50CF | Government of Sind Public Works Department. |
| 5 | | | *Water Van.*—Any good strongly built 25/30 H.P. truck fitted with 750/1,000 gallons, and water pump. | Supplying water in out-of-way places. | Do. | 20 | 0·15 | 19·50BF 3·00 | Do. |
| 6 | | | 4. *Air Compressor.*—Compressor, portable, twin cylinder air compressor, capacity 63 ft. per minute, maximum air pressure 125 lb. per sq. inch, bore (H.P.) 3¾ in., (L.P.) 6 in., stroke 4 in. | Quarrying | Do. | 20 | 0·10 | 2·00 | Do. |
| 7 | | | 5. *Concrete Vibrators.*—Pneumatic screen board vibrators, frequency 3,150 v.p.m., overall length 8¼ in., weight 12½ lb. | Concrete work | Do. | 0·40 | 0·045 | 1·80 | Do. |
| 8 | | | *Concrete Mixers.*—14/10 and 10/7 cu. ft. capacity. All steel closed drum with machined tracks and pressed ends, rounded corners for self cleaning. Six steel plough blades and six lifting buckets for rapid and thorough mix. | Do. | Do. | 10 | 0·12 | 1·20 | Do. |

## STATEMENT No. 6—*continued*

| Serial No. | Indentor's Indent No. | D.G.S. & D.'s Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 8 | | | High tensile steel cable operated scraper, 13.5 cu. yards, struck capacity, 17.5 cu. yards, heaped capacity, 9. ft. cutting edge, stub axle wheels and tapered roller bearings, wheel base 22 ft., height of front apron 38 in., apron opening 66 in., height of ejector 74 in. (forward positive type ejection), maximum depth of spread 21 in., maximum depth of cut 14 in., tyre sizes 18.00 by 24 by 2100 by 29. Gross weight 250,000 lb. | Earthwork on roads. | 18.—Other revenue expenditure, etc. XVII.—Irrigation. Special tools and plants. | 8 | Rs. in lacs 0·25 | Rs. in lacs 4·00<br>32·50CF | Government of Sind Public Works Department. |
| 9 | | | *Scrapers.*—High tensile steel cable operated scraper, 13.5 cu. yards, struck capacity 17.5 cu. yards, heaped capacity, 9 ft. cutting edge, stub axle wheels and tapered roller bearings. Wheel base 22 ft., height of front apron 38 in., apron opening 66 in., height of ejector 74. in. (forward positive type ejection), maximum depth of spread 21 in., maximum depth of cut 14 in., tyre sizes 18.00 by 24 and 2100 by 29. Gross weight 250,000 lb. | Earthworks | Do. | 2 | 0·25 | 0·50 | Do. |
| 10 | | | *Welding Set.*—Portable 2-cycle diesel engine driven arc welding set with self-starting 60 H.P. engine and a generator of 50/400 amps. capacity. The engine should be connected to generator by means of flexible flag type coupling, keyed to generator shift and bolted to engine flywheel. The equipment must be provided with control panel comprising of ammeter, pressure gauge, tempera- | Field essential repairs. | Do. | 1 | 0·20 | 0·20 | Do. |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rs. in lacs | Rs. in lacs | |
| 11 | | | *Bulldozer Blade*.—High carbon steel cutting edge, box type moldboard construction, cable operated, road blade length 135 in., height 45 in. maximum lift works, above ground 48 in., maximum blade pitch adjustment* 12 in. with sheave 9½ in. dia., fitted with roller bearings and alemite grease fittings. Gross weight 5,490 lb. | Earthworks | 18.—Other revenue expenditure, etc.<br>XVII.—Irrigation. Special tools and plants. | 12 | 0.12 | 0.44 | Government of Sind, Public Works Department. |
| 12 | | | Le Touraneau Model "X2" sheep foot rollers, number of drums 3, size of each drum 4 ft. in length, diameter 4 ft. 10 in. including feet, having a weight of 8,860 lb. with drawbar hitch complete, for use with tractors of 40/50 H.P. | Rolling | Do. | 4 | 0.104 | 0.42 | Do. |
| 13 | | | Le Touraneau sheep foot rollers (Tournapackers) Model "144", number of drums 2, having weight of 14,000 lb., for use with tractors of 100 H.P. or more. | Do. | Do. | 8 | 0.183 | 1.46 | Do. |
| 14 | | | Le Touraneau Model "K30" rooter, 3 teeth, weighing 4,250 lb., for use with tractors of 75 drawbar H.P. or more. | Do. | Do. | 4 | 0.121 | 0.48 | Do. |
| 15 | | | Le Touraneau Model "S3" rooter, teeth, weighing 4,250 lb., for use with tractors of 50 drawbar H.P. or more. | Do. | Do. | 1 | 0.52 | 0.52 | Do. |

* 10° maximum blade tilting adjustment.

STATEMENT No. 6—*continued*

| Serial No. | Indentor's Indent No. | D.G.S. & D.'s Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Acccounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 16 | | | *Specifications Details, Stone Crushers.*—Body cast in one piece in Mechanite, with heavy triple ribbing. Jaws of High quality manganese steel. Bearing best quality anti-friction. Eccentric shaped. Crushing action speed designed to operate at 260 r.p.m. | Do. | Do. | 12 | Rs. in lacs. 0.120 | Rs. in lacs. 1.44 | Government of Sind, Public Works Department. |
| 17 | | | 12 in. by 7 in diesel engine, portable, crushing and screening plant, complete with loading platform. | | | 12 | 0.10 | 1.20 | Do. |
| 18 | | | *Asphalt Mixer.*—Body.—Sides of strong cast iron, protected from wear by renewable lining plates.<br>*Shapes.*—Of mild steel square section.<br>*Gearing.*—The gearing is in cast iron, with steel pinion meshing into one of the equal wheels, in the smaller machines.<br>Capacity 10 cu. ft., B.A.P. 8-10, pulley driven, 120 r.p.m. | | | 10 | 0.083 | 0.83 | Do. |
| | | | *Single Vibrating Roller.*—Weight 3,85 ton, engine 21 H.P., "Lister" diesel vibrations, 3,000 per minute, speed 1 to 15 m.p.h. | | | | | | |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| 19 | | | *Vibrating and Finishing Machine.*—Weight 4,4 tons. Engine 21 H.P., speed ahead 7 ft., percent-reverse 53 ft./int., normal capacity/bar 150, 1 in ft. advance.<br><br>*N.B.*—7 and 8 are available with Messrs. Wallen & Co., Limited, McLeod Road, Karachi. | | | 5 | Rs. in lacs. 0.19 | Rs. in lacs. 0.95 | Government of Sind, Public Works Department, |
| 20 | | | *Workshop, Field.*—As in Item 10 of Statement No. 1. | | | 27 | 1.5 | 3.00 | Do. |

## STATEMENT No. 7.

STATEMENT SHOWING DETAILS OF (a) EARTH-MOVING MACHINERY—(i) UNITED KINGDOM ORIGIN AND (ii) U. S. A. ORIGIN—REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH CONSTRUCTION AND MAINTENANCE OF ROADS (WORKSHOP MACHINERY), POST-WAR CONSTRUCTION SCHEME, ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D.'s Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | | | *Lathe, Screw-Cutting.*—Self-acting surfacing screw-cutting gap bed lathe, 6 ft. bed, 6 in. centre, swing-over gap 18 in. Belt-driven. | Machinery required for roads (workshop.) | 18.—Special tools and plant. | 2 Nos. | Rs. in lacs 0.20 | Rs. in lacs 0.40 | Government of Sind, Public Works Department. |
| | | | (*ii*) Heavy duty gap bed lathe, 16 ft. bed, 12 in. centre, swing-over gap 16 in. Complete with independent chucks, face plate, loose and fast pullies. Belt-driven. | Do. | Do. | No. | 0.35 | 0.35 | Do. |
| 2 | | | *Milling Machines.*—Universal milling machine, motor-driven with standard equipment and having following specifications :—<br>(1) 48 in. by 12 in. table.<br>(2) Longitudinal feed 42 in.<br>(3) Gross feed 12 in.<br>(4) Vertical movement of the table 12 in. | Do. | Do. | | 0.35 | 0.35 | Do. |
| 3 | | | *Pneumatic Hammer.*—5-cwt. | Do. | Do. | | 0.20 | 0.20 | Do. |
| 4 | | | *Shaping Machine.*—Shaper, independent drive, 16 in. by 12 in. table, 29 in. longitudinal feed and 12 in. transverse feed, vertical movement 12 in. | Do. | Do. | | 0.08 | 1.38C.F. | Do. |
| 5 | | | *Hydraulic Press.*—Horizontal, capable of exerting pressure up to 20,000 lb. per sq. in. | Do. | Do. | 1 No. | 0.18 | 0.18 | Do. |
| 6 | | | *Bending Machine.*—Capable of bending, equipped with rollers to bend up to ½in. thick plate from 6 in. diameter, in lengths of 12 ft. Belt-driven. | Do. | Do. | 1 No. | 0.12 | 0.12 | Do. |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| 7 | | | *Smithy Hearth.*—Blacksmith forges with arrangements for draught smithy hearths forges. | Machinery required for roads (work shop). | 18.—Special tools and plants. | 3 Nos. | Rs. in lacs 0·02 | Rs. in lacs. ·06 | Government of Sind Public Works Department. |
| 8 | | | *Welding Plant.*—Portable diesel engine-driven, double operator generating set, completely enclosed, radiator cooled engine mounted on steel drum-wheels trolley. Generator capable of 15 k.w. output with continous welding connection up to 200 amps. Variable for 25 amps. upwards in suitable stages. | Do. | Do. | 1 No. | 0·20 | 0·20 | Do. |
| 9 | | | *Gas Welding Equipment.*—Complete with sangs and cutting equipment. | Do. | Do. | 1 No. | 0·025 | 0·025 | Do. |
| 10 | | | *Punching and Shearing Machine.*—Capable of shearing M.S. plates up to ½ in. thick and punching holes in it up to ½ in. | Do. | Do. | 1 No. | 0·40 | 0·40 | Do. |
| 11 | | | *Drilling Machine.*—Radial, boring drilling, tapping and slidding machine. Independent drive, having drilling capacity up to 1½ in., equipped with table, 3 ft. by 3 ft. having adjustment swing arm for 3 per cent. vertical movement and 3 ft. transverse movement. | Do. | Do. | 1 No. | 0·25 | 0·25 | Do. |
| 12 | | | 30 *H. P. Motor.*—Induction motor, 440 volts, 50 cycles, completely enclosed type, complete with switch, gear and regulator. | Do. | Do. | 1 No. | 0·09 | 0·09 | Do. |
| 13 | | | *Main Shafting for the Workshop.*—150 rft.—3 in. diameter, in 20-30 ft. lengths, complete with plumber blocks, self-aligned, fixed on brackets | Do. | Do. | 1 No. | 0·09 | 0·09 | Do. |
| 14 | | | *Cupola.*—1 ton, foundry, equipment o be fabricated in Public Works Department workshop, with accessories, complete. | Do. | Do. | 1 No. | 0·12 | 0·12 | Do. |
| 15 | | | *Workshop Tools* .. — — | Do. | Do. | Lump sum. | | 0·40 | Do. |
| | | | | | | | Total.. | 3·315 | |

## STATEMENT No. 8.

STATEMENT SHOWING DETAILS OF SPARE PARTS OF EARTH-MOVING MACHINERY OF (i) UNITED KINGDOM ORIGIN; (ii) U.S.A. ORIGIN, REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH BUND WORKS (IRRIGATION AND FLOOD CONTROL), DEVELOPMENT SCHEME, ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D's Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | | | Tractor and scraper .. .. | For machinery listed in Statement No. 1. | 18.—Other revenue expenditure, etc. XVII.—Irrigation. Special tools and plant. | 12 | Rs. in lacs 0·12 | Rs. in lacs 1·44 | Government of Sind, Public Works Department. |
| 2 | | | Bulldozer .. .. .. .. | Do. | Do. | 4 | 0·076 | 0·30 | Do. |
| 3 | | | Ripper .. .. .. .. | Do. | Do. | 4 | 0·013 | 0·05 | Do. |
| 4 | | | Grader .. .. .. .. | Do. | Do. | 2 | 0·054 | 0·11 | Do. |
| 5 | | | Trucks .. .. .. .. | Do. | Do. | 4 | 0·015 | 0·06 | Do. |
| 6 | | | Crane .. .. .. .. | Do. | Do. | 4 | 0·025 | 0·10 | Do. |
| 7 | | | Sheep foot roller .. .. .. | Do. | Do. | 4 | 0·010 | 0·04 | Do. |
| 8 | | | Welding plant .. .. . | Do. | Do. | 2 | 0·020 | 0·04 | Do. |
| 9 | | | Compressor, air .. .. .. | Do. | Do. | 2 | 0·008 | 0·02 | Do. |
| 10 | | | Field workshop . .. .. | Do. | Do. | 2 | 0·150 | 0·30 | Do. |
| 11 | | | Lighting set .. .. .. | Do. | Do. | 2 | 0·018 | 0·04 | Do. |
| | | | | | | | Total: | Rs. 2·50 lacs | |

## STATEMENT No. 9.

STATEMENT SHOWING DETAILS OF SPARE PARTS OF EARTH-MOVING MACHINERY OF (i) UNITED KINGDOM ORIGIN; (ii) U.S.A. ORIGIN REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH IRRIGATION (SILT CLEARANCE IN INUNDATION CANALS), DEVELOPMENT SCHEME, ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D.'s. Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | Rs. in lacs | Rs. in lacs | |
| 1 | | | Tractors .. .. .. .. | Required for machinery listed in Statement No. 2. | XVII.—Special tools and plant. | 6 | 0.100 | 0.60 | Government of Sind, Public Works Department. |
| 2 | | | Dragline excavator .. .. | Do. .. | Do. | 2 | 0.242 | 0.48 | Do. |
| 3 | | | Bulldozer .. .. .. .. | Do. | Do. | 2 | 0.076 | 0.15 | Do. |
| 4 | | | Trucks, diesel .. .. .. | Do. .. | Do. | 2 | 0.054 | 0.11 | Do. |
| 5 | | | Welding plant .. .. .. | Do. .. | Do. | 2 | 0.018 | 0.04 | Do. |
| 6 | | | Compressor, air .. .. .. | Do. .. | Do. | 2 | 0.008 | 0.02 | Do. |
| 7 | | | Lighting set .. .. .. | Do. | Do. | 2 | 0.025 | 0.05 | Do. |
| 8 | | | Workshop, field .. .. .. | Do. | Do. | 2 | 0.150 | 0.30 | Do. |
| | | | | | | | Total : Rs. 1.75 lacs | | |

## STATEMENT No. 10.

STATEMENT SHOWING DETAILS OF SPARE PARTS OF EARTH-MOVING MACHINERY OF (i) UNITED KINGDOM ORIGIN; (ii) U.S.A. ORIGIN, REQUIRED BY THE GOVERNMENT OF SIND, IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH IRRIGATION (SILT CLEARANCE OF SMALL PERENNIAL CHANNELS), DEVELOPMENT SCHEME, ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D.'s Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | Rs. in lacs | Rs. in lacs | |
| 1 | | | Dragline excavator .. .. | Required for machinery listed in Statement No. 3. | XVII.—Special tools and plant. | 4 | 0.058 | 0.23 | Government of Sind, Public Works Department. |
| 2 | | | Dragline excavator .. .. | Do. | Do. | 2 | 9.050 | 0.10 | Do. |
| 3 | | | Trucks, diesel .. .. .. | Do. | Do. | 3 | 0.054 | 0.16 | Do. |
| 4 | | | Welding plant .. .. .. | Do. | Do. | 1 | 0.018 | 0.02 | Do. |
| 5 | | | Field workshop .. .. .. | Do. | Do. | 1 | 0.150 | 0.15 | Do. |
| | | | | | | | Total : Rs. 0.66 lacs | | |

## STATEMENT No. 11

STATEMENT SHOWING DETAILS OF SPARE PARTS OF EARTH-MOVING MACHINERY OF (i) UNITED KINGDOM ORIGIN; (ii) U.S.A. ORIGIN, REQUIRED BY THE GOVERNMENT OF SIND, IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH IRRIGATION (SILT CLEARANCE OF BARRAGE CANALS), DEVELOPMENT SCHEME, ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D.'s Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | | | Dragline excavator .. .. | Required for machinery listed in Statement No. 4. | XVII—Special tools and plant. | 4 | Rs. in lacs 0.058 | Rs. in lacs 0.23 | Government of Sind, Public Works Department. |
| 2 | | | Dragline excavator .. .. | Do. | Do. | 2 | 0.060 | 0.12 | Do. |
| 3 | | | Trucks, diesel .. .. .. | Do. | Do. | 3 | 0.054 | 0.16 | Do. |
| 4 | | | Workshop, mobile .. .. | Do. | Do. | 2 | 0.150 | 0.30 | Do. |
| 5 | | | Welding plant .. .. .. | Do. | Do. | 2 | 0.018 | 0.04 | Do. |
| | | | | | | | Total : | Rs. 0.85 lacs | |

## STATEMENT No 12

**STATEMENT SHOWING DETAILS OF SPARE PARTS OF EARTH-MOVING MACHINERY OF (i) UNITED KINGDOM ORIGIN, (ii) U.S.A. ORIGIN—REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH BUNDS AND CANALS (WORKSHOP MACHINERY), DEVELOPMENT SCHEME, ETC.**

| Serial No. | Indentor's Indent No. | D.G.S. & D.'s Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | Rs. in lacs | Rs. in lacs | |
| 1 | | | Lathe, gap bed .. .. .. | Required for machinery listed in Statement No. 5. | XVII—Special tools and plant. | 1 | 0.020 | 0.02 | Government of Sind, Public Works Department. |
| 2 | | | Lathe, gap bed .. .. .. | Do. | Do. | 1 | 0.035 | 0.04 | Do. |
| 3 | | | Lathe, capstan .. .. .. | Do. | Do. | 1 | 0.014 | 0.01 | Do. |
| 4 | | | Lathe .. .. .. | Do. | Do. | 1 | 0.012 | 0.01 | Do. |
| 5 | | | Universal milling machine .. .. | Do. | Do. | 1 | 0.035 | 0.04 | Do. |
| 6 | | | Power hammer .. .. .. | Do. | Do. | 1 | 0.020 | 0.02 | Do. |
| 7 | | | Grinding machine .. .. .. | Do. | Do. | 1 | 0.015 | 0.02 | Do. |
| 8 | | | Boring machine .. .. .. | Do. | Do. | 1 | 0.025 | 0.03 | Do. |
| 9 | | | Electric furnace .. .. .. | Do. | Do. | 1 | 0.013 | 0.02 | Do. |
| 10 | | | Diesel engine .. .. .. | Do. | Do. | 1 | 0.012 | 0.01 | Do. |
| 11 | | | Shaper .. .. .. .. | Do. | Do. | 1 | 0.008 | 0.01 | Do. |
| | | | | | | | Total .. | 0.25 | |

STATEMENT No. 13

STATEMENT SHOWING DETAILS OF SPARE PARTS OF EARTH-MOVING MACHINERY OF (i) UNITED KINGDOM ORIGIN, (ii) U.S.A. ORIGIN REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH CONSTRUCTION AND MAINTENANCE OF ROADS, POST-WAR RECONSTRUCTION SCHEME.

| Serial No. | Indentor's Indent No. | D.G.S. & D.'s Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | | | Tractor (track type) .. .. | Required for machinery listed in Statement No. 6. | 18—Special tools and plant. | 20 | Rs. in lacs 0.050 | Rs. in lacs 1.00 | Government of Sind, Public Works Department. |
| 2 | | | Tractor (tyre wheel type) .. .. | Do. | Do. | 4 | 0.050 | 0.20 | Do. |
| 3 | | | Grader, motor .. .. .. | Do. | Do. | 5 | 0.050 | 0.25 | Do. |
| 4 | | | Trucks, diesel .. .. .. | Do. | Do. | 20 | 0.025 | 0.50 | Do. |
| 5 | | | Water van .. .. .. | Do. | Do. | 20 | 0.015 | 0.30 | Do. |
| 6 | | | Compressor, air .. .. .. | Do. | Do. | 20 | 0.010 | 0.20 | Do. |
| 7 | | | Vibrators .. .. .. | Do. | Do. | 10 | 0.012 | 0.12 | Do. |
| 8 | | | Scraper .. .. .. | Do. | Do. | 8 | 0.025 | 0.20 | Do. |
| 9 | | | Welding set .. .. .. | Do. | Do. | 1 | 0.020 | 0.02 | Do. |
| 10 | | | Bulldozer, blade .. .. .. | Do. | Do. | 12 | 0.012 | 0.14 | Do. |
| 11 | | | Sheep foot roller (3-drum) .. .. | Do. | Do. | 12 | 0.009 | 0.11 | Do. |
| 12 | | | Rooter .. .. .. .. | Do. | Do. | 4 | 0.013 | 0.05 | Do. |
| 13 | | | Truck mixers, diesel .. .. | Do. | Do. | 10 | 0.025 | 0.25 | Do. |

STATEMENT No. 13—*continued*

| Serial No. | Indentor's Indent No. | D.G.S. & D.'s Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting Unit | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | Rs. in lacs. | Rs. in lacs. | |
| 14 | | | Stone crushing and screening unit .. | Do. | Do. | 12 | 0.010 | 0.12 | Do. |
| 15 | | | Pneumatic unit and quarry unit .. | Do. | Do. | 1 | 0.100 | 0.10 | Do. |
| 16 | | | Asphalt mixer .. .. .. | Do. | Do. | 12 | 0.010 | 0.12 | Do. |
| 17 | | | Bitumen sprayer .. .. .. | Do. | Do. | 12 | 0.010 | 0.12 | Do. |
| 18 | | | Workshop, field .. .. .. | Do. | Do. | 2 | 0.150 | 0.30 | Do. |
| | | | | | | | Total .. | 4,10 | |

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STATEMENT No. 14.

STATEMENT SHOWING DETAILS OF SPARE PARTS OF EARTH-MOVING MACHINERY OF—(i) UNITED KINGDOM ORIGIN, (ii) U.S. ORIGIN REQUIRED BY THE GOVERNMENT OF SIND IN THE DEPARTMENT OF PUBLIC WORKS IN CONNECTION WITH CONSTRUCTION AND MAINTENANCE OF ROADS (WORKSHOP MACHINERY) POST-WAR DEVELOPMENT SCHEME, ETC.

| Serial No. | Indentor's Indent No. | D.G.S. & D's Indent No. | Description of Stores. | Actual use to which the stores will be put to guide supply. | Accounting Unit. | Number or quantity required. | Estimated Cost. | | Name of Indentor. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rate per Unit. | Total. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | | | Lathe, screw cutting — .. | For machinery listed in Statement No. 7. | 18.—Special tools and plant. | 2 | Rs. in lacs 0.020 | Rs. in lacs 0.04 | Government of Sind, Public Works Department. |
| 2 | | | Milling machine — — | Do. | Do. | 1 | 0.035 | 0.04 | Do. |
| 3 | | | Power hammer — — | Do. | Do. | 1 | 0.020 | 0.02 | Do. |
| 4 | | | Shaping machine — — | Do. | Do. | 1 | 0.020 | 0.02 | Do. |
| 5 | | | Hydraulic press — .. | Do. | Do. | 1 | 0.018 | 0.02 | Do. |
| 6 | | | Bending machine — — | Do. | Do. | 1 | 0.012 | 0.01 | Do. |
| 7 | | | Smithy hearth — — | Do. | Do. | 3 | 0.002 | 0.01 | Do. |
| 8 | | | Welding plant — — | Do. | Do. | 1 | 0.020 | 0.02 | Do. |
| 9 | | | Punching and shearing machine .. | Do. | Do. | 1 | 0.040 | 0.04 | Do. |
| 10 | | | Drilling machine — .. | Do. | Do. | 1 | 0.025 | 0.03 | Do. |
| 11 | | | Motor, electric — .. | Do. | Do. | 1 | 0.009 | 0.01 | Do. |
| | | | | | | | Total .. | 0.26 | |

*Serial No.* 33.

## SEED AND MODEL FARMS.

*Brief Description of Project.* (*Purpose of Project*).—One of the banes of agriculture of Pakistan is the use of inferior varieties of seeds and the improvement of seeds is, therefore, an urgent necessity, if the yield per acre is to be increased. The farmer is too poor to introduce improvements and the Government of Pakistan has, therefore, decided to set up a network of seed farms throughout the country. Besides the supply of seeds, these farms will also be entrusted with the task of distributing improved agricultural implements, fertilizers, organic manures, tractors on hire, etc. It may be possible ultimately to run these seed farms on a co-operative basis, but, to start with, government have to invest large sums of money on their establishment. The total number of villages in Western Pakistan is 58,343 and in Eastern Pakistan 36,630. Providing a seed farm at the rate of 1 per 100 villages, the number required will be 580 in Western Pakistan and 360 in Eastern Pakistan. The total capital expenditure is estimated at Rs. 94 million. It is expected to make these farms self-supporting ultimately by suitable fixation of the sale prices of seeds, but large subsidies will be necessary in the early stages. Recurring expenditure for one year at the rate Rs. 6,000 per farm has, therefore, been provided in the plan.

*Undertakers of Project.*—Provincial and State Governments, assisted by the Central Government to the extent necessary.

*Source of Finance.*—Loans—Internal and external.

*Total Estimated Cost.*—Rs. 100 million (approximately).

Internal—Rs. 99.5.
External—Rs. 0.5.

*Date to be Begun.*—As soon as funds are sanctioned.

*Expenditure up to June, 1951.*—Nil.

*Expenditure Remaining after July, 1951.*—Rs. 100 million.

*Expenditure, 1951—52.* } Details not yet available.
*Expenditure, 1952-53.* }

*Date of Completion.*—Five years after start.

*Technical Assistance Required.*—Nil.

*Serial No.* 34.

## SURVEY OF MEDICINAL HERBS AND PLANTS AND DEVELOPMENTAL RESEARCH IN THAT FIELD.

*Brief Description of Project.*—Important medicinal herbs and plants grow in considerable quantities in the Tribal Areas, N.W.F.P. and Baluchistan, parts of West Punjab, etc. The more important of these are, Ephedera, Artemisia Pyrethrum, Malefern, Assafactida, Balladone, Hyoascymus and Nux vomica.

The Government of Pakistan have already sanctioned the establishment of a nucleus organization to perform the following functions in regard to a limited area: —

(1) pure survey; identification and preparation of lists;
(2) extension and cultivation of herbs; and
(3) evolution of better varieties of herbs.

*Purpose of the Project.*—It is evident that before undertaking commercial enterprises based on the herbs in question, pilot plants must be set up to demonstrate the economic soundness of the proposed project, a sum of Rs. one million has been provided for the purpose in the Development Plan.

*Undertakers of Project.*—Ministry of Agriculture.

*Source of Finance.*—Loan—partly internal, partly external.

*Total Estimated Cost.*—Rs. 1,000,000.

Internal } Not estimated separately.
External }

*Date Begun (or to be Begun).*—As soon as necessary facilities are available.

*Expenditure up to June, 1951.*—Nil.

*Expenditure Remaining after July, 1951.*—Rs. 1,000,000.

*Expenditure, 1951-52.*—
Internal
External } Not estimated.

*Expenditure, 1952-53.*—
Internal
External } Not estimated.

*Date of Completion, 1956-57.*

*Technical Assistance Required.*—A party of Economic Botanists and Organic Chemists to carry out a complete survey of the plants found in different parts of Pakistan and to demonstrate the possibilities of their commercial exploitation may be required.

*Serial No. 41.*

## ESTABLISHMENT OF PAPER INDUSTRY IN PAKISTAN.

*Brief Description of Project( Purpose of Project).*—The aim of the scheme is to utilize the bamboo available in abundance in the Chittagong Forests and Chittagong Hill Tracts of East Bengal, for the manufacture of pulp and paper, mainly of printing and writing qualities.

The Government of Pakistan engaged the services of two firms of Consultants, Messrs. Stadler Hurter & Co., Ltd., from Canada and K.M.W. from Sweden to examine and report on the feasibility of establishing a paper factory in East Bengal. The reports of these two Consultants were received and thoroughly examined departmentally.

The present total paper requirements of Western and Eastern Pakistan, of writing and printing qualities, are estimated between 30 and 40 thousand tons annually. This estimate is based on the figures of imports of various qualities of paper during 1948-49. In the absence of any paper factory in the country the whole of the requirements are being met from imports from foreign countries, thus putting a constant strain on the Foreign Currency requirements of the country. The project of the Paper Mill proposed to be taken up is planned to produce 100 tons of finished paper per day, thus making a total annual production of 30,000 tons thereby meeting the entire requirements of printing and writing paper.

The Mill is proposed to be erected about 20 miles up-stream from Chittagong on the bank of the Karnafully River. This location is selected in view of the affinity of the site to the bamboo forests and the river water as well facility of river transport. Thus the two main requirements of a paper factory, *i.e.*, nearness to main raw material and availability of plenty of water (1 to 1½ lakhs gallons of water is required per ton of paper), are met by the selection of this location.

*Undertakers of Project (Source of Finance).*—The scheme is Government-sponsored and it is proposed that the Government would provide the total finance required out of loans raised internally and externally.

*Total Estimated Cost.*—Rs. 50,000,000.
Internal – Rs. 13,300,000.
External – Rs. 36,700,000.

*Date Begun.*—1951-52.

*Expenditure up to June, 1951.*—Approximately Rs. 10,000,000, mostly in foreign currencies.

*Expenditure Remaining after July, 1951.*—Rs. 40,000,000.
Internal – Rs. 8,800,000.
External – Rs. 31,200,000.

*Expenditure, 1951-52*
*Expenditure, 1952-53* } Exact details will be known when orders for the supply of machinery have been finally placed.

*Date of Completion.*—March, 1953.

*Technical Assistance Required.*—Advice of firms of international repute has already been obtained.

Serial No. 4B.

## SETTING UP OF FIVE JUTE MILLS IN EAST BENGAL.

*Brief Description of Project (Purpose of Project).*—Pakistan produces 85 per cent. of the world's total production of raw jute but depends on foreign countries for supply of even its own requirements of jute manufactures, *e.g.*, hessian, gunny bags, etc. The jute industry has had a flourishing past and is assured of a promising future in view of the fact that even to-day the total production of jute manufactures in the world is inadequate to meet full demand. The scope for setting up new jute mills is further established by the fact that almost all the jute mills in India—about 113 in all—were erected more than 30 years ago and are generally worn out and obsolete. Since Pakistan produces bulk of the world's raw jute, it should be easier for her to develop a jute manufacturing industry to meet its own demand as well as such portion of world's demand as is not already covered by the existing industry or which may develop because of the inability of the existing industry to meet the growing demand on account of increased production of food grains in the world or on account of diminution in the production of the existing old and decaying mills. It is necessary to manufacture jute goods under the more favourable circumstances so that they may be produced economically and be able to complete with substitutes. The threat of substitutes has to be met effectively as it is a threat to the whole economy of Pakistan. The Government of Pakistan has, therefore, decided that efforts should be made to establish a jute manufacturing industry in Pakistan and has set a target of 15,000 loomage for the next ten years, and about 6,000 looms by June, 1957. Plans for the setting up of the first three jute mills of 1,000 looms each have been completed. The first is expected to be in production by June, 1951, and the remaining five are proposed to be set up during the period of this development plan (1951-57).

According to the declared policy of the Government, jute industry is ordinarily to be left to private enterprise but this industry requires very heavy investment and it is not possible for private enterprise to collect the necessary capital. The Government of Pakistan have, therefore, decided to establish five jute mills, each of 1,000 looms, three of these in partnership with a well known Pakistan concern which has long experience of this industry in undivided India.

*Undertakers of the Project (Source of Finance).*—Private capital, in partnership with Government of Pakistan, to the extent necessary. For the first three mills, Government of Pakistan has entered into partnership with a Pakistani firm, each side contributing half of the capital required. The Pakistan Industrial Development Corporation will invest the required amount on behalf of the Government of Pakistan and manage the affairs of the joint concern.

*Total Estimated Cost.*—Rs. 132,000,000.
Internal—Rs. 46,000,000.
External—Rs. 86,000,000.

*Date Begun.*—Orders for the machinery for the first three mills have already been placed and construction of factory buildings started.

*Expenditure up to June, 1951.*—Rs. 22,000,000.

*Expenditure Remaining after July, 1951.*—Rs. 110,000,000.
Internal—Rs. 38,000,000.
External—Rs. 72,000,000.

*Expenditure, 1951-52.*—Rs. 22,000,000.
Internal—Rs. 7,600,000.
External—Rs. 14,400,000.

*Expenditure, 1952-53.*—Rs. 22,000,000.
Internal—Rs. 7,600,000.
External—Rs. 14,400,000.

*Date of Completion.*—1956-57.—
*Technical Assistance Required.*—Nil.

# HYDRO-ELECTRIC POWER DEVELOPMENT IN PAKISTAN

1. Planning for the development of power resources being of the essence of the industrialisation programme of the country, the First Pakistan Industries Conference which met in December, 1947, recommended a target production of 5 lacs kW. in the coming five years, distributed as follows :—

| | | |
|---|---|---|
| East Pakistan | ... ... | 1,100,000 kW. |
| Punjab | ... ... | 200,000 kW. |
| N.W.F.P. | ... ... | 1,100,000 kW. |
| Bahawalpur | ... ... | 20,000 kW. |
| Sind and Baluchistan | ... | 80,000 kW. |

2. The recommendations of the Industries Conference were followed by a rapid survey of power resources and likely demands by Sir Henry Howard (a consulting engineer of repute) in February, 1948. His assessment of the additional demand for power likely to develop up to 1955 was as follows :—

| | | |
|---|---|---|
| East Pakistan | ... ... | 40,000 kW. |
| Punjab and N.W.F.P. | ... ... | 95,000 kW. |
| Sind and Baluchistan | ... ... | 64,000 kW. |

These preliminary investigations were followed by a Conference held in Karachi on the 28th and 29th of April, 1948, to consider both organizational and techanical matters relative to the development of Hydel power in Pakistan. As a result of the deliberations of the Conference, the Central Engineering Authority, charged with the responsibility of co-ordinating all engineering activity in Pakistan, was set up with effect from the 1st July, 1948. The Central Engineering Authority is now assisted by Messrs. Merz Rendel Vattan (Pakistan), a combine Mclellan of London, Messrs. Rendel Palmer and Tritton, also of London, and of three firms of consulting engineers of international repute, *viz*. Messrs. Merz, Messrs. Vattenbyggandsbyran of Stockholm, Sweden.

3. It is generally agreed that Pakistan's power potential is between 5 and 6 million kW. To determine the extent to which it should be developed in the next ten years, it is deemed necessary to draw up an overall power development plan based on a load survey of the entire country and taking into consideration the experience so far gained of the trend of industrial development. The Central Engineering Authority and the M.R.V.(P.) are, therefore, carrying out an intensive load survey of the whole of Pakistan and are preparing on overall plan for the country-wide transmission of electrical energy from the project generating stations by means of suitable electric grids. These will eventually join up to in two vast grids, one in the East and the other in the West, and supply power at the very doorsteps not only of the industrialists but also other consumers throughout Pakistan. This plan will be ready in the next six months and will clearly indicate in the required detail the actual shortages in different centres and the lines on which power development, both in individual centres and in Pakistan as a whole, should be proceeded with.

4. One of the first tasks to be entrusted to the consulting engineers by the Central Engineering Authority was the survey of the existing thermal power stations in Pakistan. The report of the consulting engineers received by Government in March, 1949, brought out the factual position in regard to the existing power stations. The total installed capacity of the different power stations in Pakistan (excluding small sets which certain units of industries are using for their own purpose) is 69,074kW., distributed as follows :—

| | | |
|---|---|---|
| Diesel | ... ... ... | 24,450 kW. |
| Steam | ... ... ... | 32,868 kW. |
| Gas | ... ... ... | 56 kW. |
| Hydel | ... ... ... | 10,700 kW. |

The major portion of this power is generated by old and inefficient and steam stations, which have been in continuous operation for several years, without repair and overhaul, due to ever-increasing demand for power, and non-availability of spare parts during the war.

5. The additional load, the demands for which have already been registered with the appropriate authorities, already exceeds the estimates given by Sir Henry Howard, *viz*. 200,000 kW. Taking all factors into consideration, the Government of Pakistan have decided to proceed in the matter with extreme circumspection and to restrict the target for the next five years to the estimates prepared

by Sir Henry Howard. Accordingly the plans for the production of Power are based on these estimates despite the fact that actual demands are likely to exceed those figures and the following projects have been approved for the purpose :—

(i) Extension of Malakand Hydro-Electric Station.
(ii) Rasul Hydro-Electric Project.
(iii) Dargai Hydro-Electric Station.
(iv) Mainwali Hydro-Electric Project.
(v) Warsak Hydro-Electric Project.
(vi) Karnafuli Hydro-Electric Project.

Brief particulars of these projects [excluding (i)] are given in the *pro-formas* enclosed.

A portion of the total expenditure (Rs. 450 million) provided for in the plan for the execution of the projects mentioned above would have been spent before July, 1951. It is, however, expected that that amount would be required on account of one or two other important projects which are now being investigated by the experts.

*Serial No.* 46.

## RASUL HYDRO-ELECTRIC PROJECT

*Brief Description of Project—Purpose of Project.*—This Power House is being constructed between two irrigation canals, Upper Jhelum Canal and Lower Jhelum Canal, near the Village of Rasul, District Gujrat. The distance between these two canals is 9,000 ft. and maximum head available is 86 ft. The discharge available for power generation varies between 3,624 cusecs in summer to 1,400 cusecs in winter. Two 11,000 kW. generators of the Kaplan Turbo-Alternators type are being installed. The objectives of the scheme are to provide electric power for industrial and public lighting and for anti-water-logging measures.

*Undertakers of Project.*—Government of Punjab.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs. 85,700,000.
Internal – Rs. 35,000,000.
External – Rs. 50,700,000.

*Date to be Begun.*—1948-49.

*Expenditure up to June, 1951.*—Exact details are not available, but it is estimated that half of the total expenditure would have been incurred up to June, 1951.

*Expenditure Remaining after July, 1951.*—Rs. 42,850,000.

*Expenditure, 1951-52* Details are not available.
*Expenditure, 1952-53*

*Date of Completion.*—Expected that the project would be completed March, 1952.

*Technical Assistance Required.*—Nil. The Consulting Engineers to the Government of Pakistan are consulted as and when necessary.

*Serial No.* 47.

## DARGAI HYDRO-ELECTRIC PROJECT.

*Brief Description of Project—Purpose of Project.*—A natural fall of 250 ft. with a discharge of about 1,000 cusecs is available on the Upper Swat River in Malakand Agency in the North-West Frontier Province. This has been utilized by what is known as Malakand Hydro-electric Scheme. At Dargai, four miles down-stream of the Malakand Works, another natural fall also of 250 ft. with a discharge of about 1,000 cusecs is available. It has been decided to install 4 × 5,000 kW sets at this place for the generation of about 15,000 kW of power.

Necessary modifications to the existing N.W.F.P. Grid System will be undertaken to link this plant so as to convey its power to important load centres.

The energy at Dargai will be generated at 11 kV, 3-phase 50 and stepped up to voltages in accordance with the schemes

*Undertakers of Project.* Government of N.W.F.P.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs. 15.55 million.

*Date to be Begun.*—1948-49.

*Expenditure up to June, 1951.*
*Expenditure Remaining after July, 1951.*
*Expenditure, 1951-52.*
*Expenditure, 1952-53.*
} Details are not available, but bulk of expenditure will be incurred in the year 1951-52 when the machinery on order is delivered.

*Date of Completion.*—1952-53.

*Technical Assistance Required.* Nil.

*Serial No.* 48.

## MIANWALI HYDRO-ELECTRIC PROJECT

*Brief Description of Project.*—Mianwali Hydro-Electric Project is proposed to be sited one mile north of Mianwali. The development of the area South of Mianwali is progressing rapidly due to the Thal Irrigation Project, and the Mianwali Hydro-Electric Scheme will go a long way towards providing the power needed for the development.

*Purpose of Project.*—The site of the project is served by a good metalled road (Mianwali-Kalabagh). The project contemplates the raising of the banks of the existing Thal Main Canal and the increased discharge of 11,500 cusecs so obtained will be utilized for production of power to the extent of 30,000 kW. by installation of three Kaplan Turbo-Alternator Units of 10,000 kW. each.

*Undertakers of Project.*—Government of Punjab.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs. 69 million.
Internal—Rs. 56.5 million.
External—Rs. 12.5 million.

*Date to be Begun.*—1950-51.

*Expenditure up to June, 1951.*—Negligible.

*Expenditure Remaining after July, 1951.*—Rs. 69 million.
Internal—Rs. 56.5 million.
External—Rs. 12.5 million.

*Expenditure, 1951-52*—Rs. 11 million.

*Expenditure, 1952-53.*—Rs. 15 million.

*Date of Completion.*—1955-56.

*Technical Assistance Required.*—Nil.

*Serial No.* 49.

## WARSAK PROJECT

*Brief Description of Project.*—The Warsak Project is situated in the N.W.F.P., a few miles upstream of Warsak, about 20 miles from Peshawar.

*Purpose of Project.*—It is a multi-purpose project. The project when completed will provide a considerable population of Pakistan with dependable supply of Hydro-Electric power at a reasonable price for domestic, industrial and agricultural purposes. It will also produce a navigable channel for 30 miles upstream of the Kabul river. Further the project will serve to irrigate

about 93,000 acres of land, which are lying arid at present. The dam will enable a high level canal of 400 cusecs to be taken out from the upstream of the reservoir to irrigate arid areas lying waste at present.

Its main features are :—

(i) The project will consist of a rockfill dam 235 high from foundation.

(ii) An underground Power House on the right bank of the river is anticipated.

(iii) The discharge of the river varies between 150,000 cusecs in summer flood peak to a minimum of 500 cusecs in winter. The maximum lift of water is 160 ft. and it is proposed to instal three units of 30,000 kW. each in the first stage.

(iv) Penstocks controlled by taintor gates, are provided to lead the water to the turbines.

(v) Turbines will be of Francis type with verticle shaft and direct couple alternators.

(vi) Tail Race Tunnels have been provided to discharge the water to the turbines into the river, after passing through the draft tubes.

(vii) Two flood outlets, controlled by taintor gates, are also provided. The diversion tunnels used during the construction for diverting river will be used for extra outlets for passing extra floods.

(viii) A controlled spillway capable of discharging 200,000 cusecs is provided to cope with abnormal high floods.

*Undertakers of Project.*—Government of N.W.F.P.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs. 143 million. This includes amounting to Rs. 10.8 million interest on capital outlay during construction.

Internal—Rs. 124 million.
External—Rs. 19 million.

*Date Begun.*—Diamond drilling is being carried on the site and the main project is expected to be started in 1951.

*Expenditure up to, June, 1951.*— Negligible.

*Expenditure Remaining after July, 1951.*—Rs. 143 million.
Internal—Rs. 124 million.
External—Rs. 19 million.

*Expenditure, 1951—52.*—Rs. 15 million.

*Expenditure, 1952-53.*—Rs. 11.5 million.

*Date of Completion.*—1956-57.

*Technical Assistance Required.*—Nil.

*Serial No.* 50.

## KARNAPHULI MULTI-PURPOSE SCHEME

*Brief Description of Project (Purpose of Project).*—This is a multi-purpose project, which aims at the generation of hydel power, provision for navigation facilities and flood control by constructing a dam across the Karnaphuli River at a site known as Chilradak, approximately 80 miles upstream of Chittagong. The proposed project will comprise a concrete lamellar gravity dam, of a maximum height of about 160 ft. The installed capacity has been fixed tentatively at 40,000 kW. (4 units of 10,000 kW. each).

Two main stages of development are contemplated. The first stage will comprise construction of the dam, the bottom outlets, the head race, the intakes, two penstocks, the power house for two units, rock excavation and foundation for two units more, the uploading bay and the control block, the tail race canal, the access roads, etc. The generating capacity on the completion of this stage will be 20,000 kW. The second stage will be reached with the completion of the power house along with other ancillary arrangements, thereby raising the installed capacity to 40,000 kW. A detailed project report is being prepared by the Consulting Engineers, namely, Messrs M. R. V. (Pakistan) of London.

*Undertakers of Projects.*—Government of East Bengal.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs.50 million.
Internal -- Rs.30 million.
External -- Rs.20 million.

*Date to be Begun, 1950-52.*—At present preliminary investigations are being carried on. Diamond drilling is also in progress.

*Expenditure up to June, 1951.*—Negligible.

*Expenditure Remaining after July, 1951.*—Rs. 50 million.

Internal—Rs.30 million.
External—Rs. 20 million.

*Expenditure, 1951-52*
*Expenditure, 1952-53* } Details are not available.

*Date of Completion, 1954-55.*

*Technical Assistance Required* —Nil.

## DEVELOPMENT OF THERMAL ELECTRIC POWER IN PAKISTAN

It has been estimated that Pakistan's power potential is between 5 and 6 million kW. This estimate has generally been assumed to be correct by all technical experts. So far, however, only one Hydro-electric station is working and generating about 10,000 kW. This station is situated in the N.W.F.P. at a place known as Malakand. Plans have been prepared for expansion of hydel power in the country, but it will obviously take some time before these projects are completed and energy is actually available. Most of the hydel power potential lies in the northern region of the Western Pakistan, and it would be difficult to serve the entire Western Pakistan with hydel energy. The hydel potential in case of East Pakistan being less than the growing demand for power in that Province, it will be equally difficult to serve the entire East Pakistan with hydel power. Accordingly, it is necessary to develop thermal power at various points in the country. At the time of Independence, Pakistan inherited only old and inefficient diesel and steam stations which, for obvious reasons, have now reached a stage when their replacement or rehabilitation is absolutely necessary. The Consulting Engineers to the Government of Pakistan have carried out a survey of the existing thermal power stations. This report reveals that the total installed capacity of different power stations is only 69,774 kW. distributed as under :—

| | | | | |
|---|---|---|---|---|
| Diesel | ... | ... | ... | 24,450 kW. |
| Steam | ... | ... | ... | 32,868 kW. |
| Gas | ... | ... | ... | 56 kW. |
| Hydel | ... | ... | ... | 10,700 kW. |

The report describes the condition in early 1949 of each power station in the country and confirms that most of these stations are running with old and inefficient diesel and steam plants, which have been in continuous operation for several years without repairs and overhaul, due to ever-increasing demand for power and non-availability of spare parts during the war. For all these reasons it has been considered necessary to set up immediately a few thermal stations in various parts of Pakistan, so that the industrialisation of the country may not be held up for want of power. For the time being the following schemes have been prepared :—

(1) Central Generating Stations at Hyderabad and Sukkur.
(2) Increased supply of electric power to Makerwal Colliery Area.
(3) Rehabilitation of Power Station in the Punjab.
(4) Diesel Power Station for Chittagong.
(5) Electrification of Pishin (Baluchistan).

Important particulars of these projects are given in the proformas enclosed.

*Serial No.* 51.

## CENTRAL GENERATING STATIONS AT HYDERABAD AND SUKKUR (SIND)

*Brief Description of Project.*—On the partition of sub-Continent of India, Sind Province inherited old and inefficient diesel and steam stations which had been in continuous operation for several years without repairs and overhaul. The machines had been derated and restrictions imposed on the use of electricity due to shortage of power.

*Purpose of Project.*—In order to overcome this acute shortage of power, Government proposes to put up central generating stations at appropriate load centres in Sind. Therefore, the central generating stations at Hyderabad and Sukkur are being proposed. The Hyderabad station will have an installed capacity of 15,000 kW. and that of Sukkur 10,000 kW.

The intention is, that Karachi, Jungshahi, Hyderabad and Sukkur power houses should be linked up to form a local grid which will help in the dispersal of industries all along the railway line and relieving congestion from over-populated cities like Karachi and Hyderabad.

*Undertakers of Project.*—Central Government.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs.60,000,000.
Internal—Rs.20,000,000.
External—Rs.40,000,000.

*Date to be Begun.*—As soon funds are available.

*Expenditure up to June, 1951.*—Negligible.

*Expenditure Remaining after July, 1951.*—Rs.60,000,000.
Internal—Rs.20,000,000.
External—Rs.40,000,000.

*Expenditure, 1951—52.*—Rs.30,000,000.

*Expenditure, 1952—53.*—Rs.20,000,000.

*Date of Completion.*—3 years after start of scheme, *i.e.* about end of financial year, 1953—54.

*Technical Assistance Required.*—Nil.

*Serial No.* 52.

## PROVISION OF INCREASED ELECTRIC POWER TO THE MAKERWAL COLLIERY AREA

*Brief Description of Project—Purpose of Project.*—Pakistan is deficient in the supplies of coal and as such it is necessary to make the best possible use of the known resources. Government of Pakistan, therefore, engaged the services of Messrs. Dufferyn Powell (Technical Services) Ltd., London, to advise on the possibilities of increasing coal production from Pakistan collieries. One of the important recommendations made by these experts is to improve the working of the Makerwal collieries and to increase the supply of electricity for the purpose. The present position of power supply is inadequate and unsatisfactory because of the worn out condition of the installed plants. It has, therefore, been decided to increase the installed capacity of the Power Station at Makerwal. It is proposed to add 4 × 500 kW. sets to the existing plants. One of these four sets would be used as stand-by.

It is intended to make use of the additional power in improving the existing inadequate and unhealthy water supply system at Makerwal.

*Undertakers of Project.*—Central Government.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs.1,520,000.
Internal—Rs.200,000.
External—Rs.1.32 million.

*Date to be Begun.*—1951-52.

*Expenditure up to June,* 1951.—Negligible.

*Expenditure Remaining after July,* 1951.—Rs. 1.52 million.

Internal – Rs. 200,000.
External – Rs. 1.32 million.

*Expenditure* 1951-52.—Rs. 800,000.

*Expenditure,* 1952-53.—Rs. 720,000.

*Date of Completion.*—End of financial year, 1952-53.

*Technical Assistance Required.*—Nil.

*Serial No.* 53.

## REHABILITATION OF POWER STATION IN THE PUNJAB.

*Description of Project.*—On the partition of the sub-Continent of India, Pakistan inherited old and inefficient diesel and steam stations which had been in continuous operation for several years without repair or overhaul. The position was aggravated due to the inadequate capacity of the standby plant and to the fact that most of the spare parts of the plants were not available either during the war or immediately after it. Their rehabilitation, augmentation and setting up of new power houses is, therefore, a question of vital urgency and is the first step in the direction of improving power supply position.

*Purpose of Project.*—The Consulting Engineers to the Government of Pakistan, Messrs. Merz Rendel Vatten (Pakistan) were engaged to examine the power stations. They have reported that the position is serious and have recommended, *inter alia,* that early action should be taken to create a common pool of new plants to make good the deficiencies of the various power stations. Under this scheme, it is proposed to give effect to this recommendation.

*Undertakers of Project.*—Government of Punjab.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs. 17.5 million.

Internal – Rs. 3,000,000.
External – Rs. 14.5 million.

*Date to be Begun.*—End of 1950-51.

*Expenditure up to June,* 1951.—Negligible.

*Expenditure Remaining after July,* 1951.—Rs. 17.5 million.

Internal – Rs. 3,000,000.
External – Rs. 14.5 million.

*Expenditure,* 1951-52.—Rs. 10,000,000.

*Expenditure,* 1952-53.—Rs. 7.5 million.

*Date of Completion.*—End of financial year 1951-52.

*Technical Assistance Required.*—Nil.

*Serial No.* 54.

## DIESEL POWER STATION FOR CHITTAGONG.

*Brief Description of Project* (*Purpose of Project*).—The need for additional electric power in Chittagong has been established for some time. The demand for power in Chittagong has already outstripped supply. Therefore, the installation of (6 by 500 kW. plus 1,000 kW.) a power house of 5,000 kW. installed capacity with 1,000 kW. as standby has been undertaken. This power plant would bridge the gap from the day of its coming into commission to the setting to work of the larger thermal station in that area. The larger station will be planned to operate in conjunction with the Karnafuli hydro-electric scheme.

On the completion of the larger thermal station this plant can be dismantled and shifted to other places where required and thus would retain its utility.

*Undertakers of Project.*—Central Government.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs. 4,000,000.
Internal – Rs. 1.5 million.
External – Rs. 2.5 million.

*Date to be Begun.*—End of financial year 1950-51.

*Expenditure up to June, 1951.*—Negligible.

*Expenditure Remaining after July, 1951.*—Rs. 4,000,000.
Internal – Rs. 1.5 million.
External – Rs. 2.5 million.

*Expenditure, 1951-52.*—Rs. 4,000,000.

*Expenditure, 1952-53.*—Nil.

*Date of Completion.*—End of financial year 1951-52.

*Technical Assistance Required.*—Nil.

*Serial No. 55.*

## ELECTRIFICATION SCHEME OF PISHIN (BALUCHISTAN).

*Brief Description of Project (Purpose of Project).*—The scheme envisages setting up of a Power Plant in Pishin town to supply energy for various uses, *viz.* lighting cottage industries, gardening, irrigation and domestic purposes. The irrigation around Pishin is at present carried out in a primitive way with the help of a Persian wheel driven by camels. Camel power puts a limit to the depth of a well, making the water supply inadequate and unsatisfactory and short life of such camels (6-9 months) makes the endeavour economically unsound. Availability of electric energy in this area would give a great impetus to the agricultural activities of the population and help them in their food shortage.

Power from this station would also be supplied through overhead KV. Transmission line to two other towns of Yaru and Malazai for similar purposes.

The power will be generated at medium voltage by diesel driven alternators of 250 kW. and 500 kW. respectively in the first instant, and to raise the capacity to 1,000 kW. by the addition of another 250 kW. set in the later stage.

*Undertakers of Project.*—Central Government.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs. 1.03 million.
Internal – Rs. 67,000.
External – Rs. 963,000.

*Date to be Begun.*—End of financial year 1950-51.

*Expenditure up to June, 1951.*—Negligible.

*Expenditure Remaining after July, 1951.*—Rs. 1.03 million.
Internal – Rs. 67,000.
External – Rs. 963,000.

*Expenditure, 1951-52.*—Rs. 1.03 Million.

*Expenditure, 1952-53.*—Negligible.

*Date of Completion.*—1951-52.

*Technical Assistance Required.*—Nil.

*Serial No.* 56.

## REHABILITATION OF PAKISTAN RAILWAYS.

*Brief Description of Project* (*Purpose of Project*).—It has come to pass that the railways situated in the territory now comprising Pakistan have had to bear the brunt both of the Allied struggle against Japan on the Eastern Frontier of the Indian sub-continent and the conditions of anarchy and chaos which followed Independence, in some provinces of Bharat. On the Eastern Front, the railway system, now called the East Bengal Railway, besides contributing in 1942 a large number of metre gauge locomotives and wagons for the use of Allied Forces in Iraq, had to carry almost the entire military traffic caused by the Allied activity in that region, with the result that the system almost succumbed to that pressure, for which it was neither planned nor prepared. By the time victory was won, the entire East Bengal Railway had been worn down to a very low condition. Unfortunately, by the terms of Partition, Pakistan had to take over the railway at its book value notwithstanding its actual condition.

In West Pakistan, the North Western Railway had similarly borne its share of the effects of war. The railway set apart a considerable portion of its workshop—at that time perhaps the most efficient workshop on the sub-continent for the use of the Army, for manufacturing war materials. This railway had also to carry large military traffic, serving as it did (and does) an area inhabited by martial races which have, through the ages, supplied the largest portion of the army personnel. Also, this area being surplus in food, the railway had to carry food for the rest of India and for the armies spread over the sub-continent. When peace came and the rehabilitation of railways was planned, orders were placed for the replacement of engines and rolling stock for these railways also, but before they (the engines and stock) arrived, the country was partitioned and the railways in Pakistan did not get their share. Immediately after Independence, anarchy and massacres raged in East Punjab (India) and the North Western Railway had to carry the entire refugee traffic in both directions. The refugees taken to India added to the losses of the railways by causing wanton damage to carriages—breaking lights, tearing up cushions, pulling out fitting, fans, etc.

This, in brief, is the history of damage and neglect which the railways in Pakistan have suffered for almost a decade now and, if these systems have to be saved from total ruin, very special measures have to be taken.

The following replacements are urgently required :—

| *Item* | *No.* | *Remarks* |
|---|---|---|
| Locomotives ... | 474 B.G.<br>140 M.G. | Due for replacement by January, 1953. |
| Boilers ... | 537 B.G.<br>95 M.G. | |
| Carriages ... | 889 B.G.<br>465 M.G. | Due for replacement by 1953. |
| Wagons ... | 8,702 B.G.<br>3,388 M.G. | Due for replacement by 1953. |
| Sleepers ... | 2.25 B.G. millions<br>7.5 M.G. millions | 3 millions. |

It has accordingly been decided to arrange for the purchase of the following :—

| *Item.* | *No.* |
|---|---|
| Diesel Electric Locomotives ... | 43 B.G.<br>39 M.G. |
| Boilers ... ... ... | 38 B.G.<br>50 M.G. |
| Light-weight of steel carriages ... | 180 B.G.<br>130 M.G. |
| Wagons (General Service) ... ... | 700 B.G.<br>1,250 M.G. |
| Sleepers ... ... ... | 3 millions. |

Besides, it has been decided to rehabilitate the Pahartali workshop and to develop the Saidpur workshops on the East Bengal Railway.

*Undertakers of Project.*—Central Government.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs. 163.7 million.

Internal / External } Almost the whole of this amount will be spent in foreign countries.

*Date Begun,* 1950-51.

*Expenditure after June,* 1951.
*Expenditure Remaining after July,* 1951.
*Expenditure,* 1951-52.
*Expenditure,* 1952-53. } Depends on the response to tenders invited from all over the world.

*Date of Completion,* 1953.

*Technical Assistance Required.*—Nil.

*Serial No.* 58.

## DEVELOPMENT OF THE PORT OF CHITTAGONG.

*Brief Description of Scheme* (*Purpose of Project*).—The Port of Chittagong is situated 10 miles up the mouth of Karnaphuli River which flows into the Bay of Bengal, in East Pakistan. It enjoys natural advantages, and can be developed into one of the best natural harbours in the East.

At the time of the establishment of Pakistan, Chittagong harbour had a jetty frontage of about 2,300 ft., comprising of four berths, capable of taking in four ships. The jetties were old, the first having been laid in 1898 and the latest in 1908. The equipment was not only worn out but had suffered considerable damage in air raids during the World War, as Chittagong provided a vital link in the line of Communications for the Burma Campaign. The maintenance work on the jetties had been completely neglected while the Allied army on the Eastern Front occupied the Port, and its condition on the whole was desperate indeed.

The handling capacity of the Chittagong Port was between .5 and .6 million tons per annum in August, 1947, which fell far short of the requirements of the import and export trade of East Pakistan. With the attainment of Freedom and establishment of Pakistan, Chittagong suddenly acquired importance.

Plans had to be quickly formulated to extend the jetties and improve facilities to enable the Port to serve as the only outlet of the sea-borne traffic of East Pakistan. The plans naturally had to be divided into short-term and long-term plans. The short-term plans comprised of the following :—

(1) Construction of a steel pile jetty ;
(2) Extension of existing jetties so as to accommodate ships of larger size ;
(3) Installation of river moorings and floating and lighterage jetties ;
(4) Installation of river lighting equipment for night pilotage, and
(5) Extension and reconstruction of existing sheds and rebuilding of marshalling yards.

Most of the work has been already completed at a cost of Rs. 1,06,58,000 and the entire short-term plan is likely to be completed by July, 1950.

The development so far carried out has made it possible for the port to accommodate twelve ships at a time and the handling capacity has been increased to 1.75 million tons per annum. With the completion of the short-term plans by the end of July, 1950 it is expected that the Port will be able to handle about 2 millions per annum.

This improvement has been effected by laying temporary moorings and floating and lighterage jetties etc., but the capacity is still very inadequate in relation to the total traffic. Additional jetties have to be provided and the outworn jetties to be completely rehabilitated to make available to commerce the facilities usually connected with a modern port.

The long-term plans were prepared by Messrs. Merz Rendel Vaften (Pakistan) Consulting and Designing Engineers with which Messrs Rendel, Palmer and Tritton of London have now merged. A copy of the final Report submitted by this firm together with a copy of the blue print showing preliminary layout of Chittagong Expansion Scheme is appended. Statement "A" gives a summary of the main recommendations made by the Engineers.

The final plans, as approved by the Government of Pakistan, provide for a 13-berth port with a total handling capacity of 3 million tons per annum, excluding coal traffic which is estimated at .96 million tons per annum. The plan is to be divided into two stages.

*Stage* I will include :—

(1) Acquisition of 1,300 acres of land for Port development ;
(2) construction of 5 new general cargo jetties 500 ft. long each ;
(3) construction of 2 new salt jetties 500 ft long each ;
(4) filling up of the gap between the existing jetties Nos. 1 and 4 ;
(5) construction of 5 transit sheds about 450 ft. by 225 ft. each ;
(6) construction of 2 salt storage sheds (salt golas) 500 ft. by 100 ft. each.
(7) construction of 7 bonded warehouses 500 ft. by 100 ft each.
(8) provision of 35—3-ton electric cranes on new general cargo and salt jetties, 2—5-ton cranes on coal jetty, 1—60-ton heavy lift fixed crane and 1—25-ton gantry crane ;
(9) provision or mechanical equipment for handling salt at one salt jetty ;
(10) Provision of 50 miles of railway track for reception, marshalling, stabling and jetty yards.

***Stage II*** **will include :—**

(1) Rehabilitation of the four existing general cargo jetties ;
(2) construction of a coal jetty ;
(3) additions and alternations to existing transit sheds ;
(4) construction of 4 bonded warehouses ;
(5) provision of 30—3-ton electric cranes for the rehabilitation jetties.
(5) provision of 35 miles of railway track for reception, marshalling, stabling and export shed yard.

The Consulting Engineers originally recommended the construction of the new jetties on 42-in. diam. "Screwcrete" cylinders with a heavy reinforced concrete deck slab but due to the non-availability of adequate supplies of cement aggregates in East Pakistan, it has been decided to construct all the 7 new jetties on steel screw piles 7 in. diameter at 15 ft. centres braced together and supported by a deck substructure consisting of rolled steel beams and joinsts. The decking will be of concrete supported on concrete jack arches spanning between longitudinal joists of the deck structure. The rest of the project will be in accordance with the details shown in the Report of the Consulting Engineers.

It is proposed to execute this plan of construction and rehabilitation through a firm of international repute to be selected as a result of tenders which will be invited shortly.

*Undertakers of Project.*—Central Government.

*Source of Finance.*—Loans raised internally and externally.

*Total Estimated Cost.*—Rs. 130,965,000.
Internal – Rs. 68,965,000.
External – Rs. 62,000,000.

*Date to be Begun.*—Depends on the response to the tenders that are being invited for the completion of the work involved.

*Expenditure up to June*, 1951.—Say Rs. 965,000.

*Expenditure Remaining after July*, 1951.—Rs. 130,000,000.

*Expenditure*, 1951-52.
*Expenditure*, 1952-53. } Depends on the tender accepted.

*Date of Completion.*—The Government have accorded high priority to this project and it is hoped that the essential parts of the project would be completed by the end of 1952-53.

*Technical Assistance Required.*—Nil. The Consulting Engineers to the Governmenut of Pakistan are being consulted.

## APPENDIX "A".

## SUMMARY OF FINAL REPORT OF MESSRS. RENDEL PALMER AND TRITTON REGARDING CHITTAGONG PORT DEVELOPMENT

Final report of the plans for development of Chittagong Port envisages a 14-berth port capable to handle 30 lac tons of cargo per annum, which includes the following works :—

(i) Construction of five new general cargo berths each capable to accommodate 500-ft. long ships.

(ii) Construction of two new salt berths each capable of accommodating 500-ft. long ships.

(iii) Construction of one passenger-cum-heavy cargo berth.

(iv) Provision of one coal berth, if required.

(v) Rehabilitation of existing five berths (*viz.*, four existing general cargo berths and one jetty to be constructed in the meantime by filling up the gap between jetties Nos. 1 and 4).

(vi) Construction of ten new transit sheds, four of 450 by 240 ft. and one 400 by 240 ft. Each shed it is estimated would be capable to store 7,000 tons of cargo which is the average load carried by ships visiting Chittagong Port.

(vii) Construction of two new salt golas of 500 by 100 ft. including provision for mechanical plant for handling salt.

(viii) Construction of five new raised open dumps behind the jetty yards to provide transit accommodation for cargo which does not require covered space.

(ix) Construction of railway yards consisting of reception and despatch yards, marshalling yards, export storage yards, loco yards, stabling yards and all necessary facilities.

(x) Diversion of Moheshkhal into Kumar Khal which in turn would be realigned over a length of approximately 1,500 ft. towards the northern mouth of the Bay of Bengal.

(xi) Construction of eleven bonded warehouses of 500 by 120 ft. dimensions.

(xii) Construction of five bridges over the diverted khals and one road bridge over the railway.

(xiii) Provision of roads, customs shed and passenger station, Port Administration offices, Port Housing estate.

(xiv) Ancillary works, including gate houses, jetty offices, customs fencing electric sub-station, pumping equipment, water, electricity and other services.

(xv) Provision of four 3-ton travelling type electrically driven cranes on each general cargo berth, four 5-tonners on each salt berth, one 60-ton fixed wharf crane and three 3-tonners on passenger-cum-heavy cargo berth, one goliath 35-tonner at the heavy lift yard and four 5-tonners fitted with grabs at the proposed coal berth.

*Serial No.* 61.

## DEVELOPMENT OF TELE-COMMUNICATION SERVICES IN PAKISTAN

*Brief Description of Project—Purpose of Project.*—This scheme relates to the development of telecommunication services in Pakistan and comprises of the following main categories of works :—

(*a*) Opening of new telephone exchange.
(*b*) Expansion of the existing telephone exchange.
(*c*) Expansion of trunk circuits.
(*d*) Extension of telegraph services to remote places.
(*e*) Expansion of main telegraph circuits.
(*f*) Replacement of old telegraph equipment by modern systems.
(*g*) Introduction of telephoto services.
(*h*) Provision of V.H.F. system for river crossing.
(*i*) Construction of staff quarters and buildings.
(*j*) Expansion of wireless circuits.

The development planned in respect of each item is shown in the statistical statements included in the development plans.

*Undertakers of Project.*—Central Government.

*Source of Finance.*—Loans, raised internally and externally.

*Total Estimated Cost.*—Rs. 90,000,000.

Internal—Rs. 47,300,000.
External—Rs. 42,700,000.

*Date to be Begun.*—1951-52.

*Expenditure up to June,* 1951.—Negligible.

*Expenditure after July,* 1951.—Rs. 90,000,000.

Internal—Rs. 47,300,000.
External—Rs. 42,700,000.

*Expenditure,* 1951-52.—Rs. 7,574,000.

Internal—Rs. 4,034,000.
External—Rs. 3,540,000.

*Expenditure,* 1952-53.—Rs. 12,130,800.

Internal—Rs. 6,168,400.
External—Rs. 5,962,000.

*Date of Completion,* 1955-56.

*Technical Assistance Required.*—Nil.

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## STATEMENT II

*Statement showing effects of Plan on Production and on Government Revenues.*

| Serial No. | Subject. | Total capital cost of plan | Total cost of plant and machinery (amount of foreign exchange required). | Total value of annual increase in production (1957). | Total increase in Government Revenue. | Remarks. |
|---|---|---|---|---|---|---|
| | | | ECONOMIC PROGRAMME | | | |
| 1. | *Agriculture* .. | Rs. 820 million | Rs. 195 million | Rs. 3,845 million | Rs. 20 million* | *Increased cultivation on six million acres, of which 4.5 million will be under perennial irrigation. |
| 2. | *Industry* .. | Rs. 480 million | Rs. 274 million | Rs. 1,250 million | Rs. 30 million† | †Presume industrialist profit is 10% of annual production and 5% of the profit which are at present exempt from tax, will continue to receive that treatment. |
| 3. | *Transport and Communications.* | Railway Rs. 200 million<br>Road Rs. 100 million<br>Tele-com. Rs. 90 million<br>Ports Rs. 140 million | Rs. 180 million<br>Rs. 1 million<br>Rs. 42.7 million<br>Rs. 66.3 million | Nil | About Rs. 25 million | Increase in income of railways, telecommunications and ports will be about Rs. 32.5 million<br>Maintenance charges of roads calculated at Rs.7.5 million at 7½% of capital investment. |
| | | Total Rs. 530 million | Rs. 290.0 million | | | |
| 4. | *Power* .. | Rs. 450 million | Rs. 162 million | Rs. 65 million | Rs. 4.5 million | About 10% of capital. |
| 5. | *Mines and Geological Survey.* | Rs. 30 million<br>((*i*) Mechanization of main working mines, about 30 in number, Rs. 3 million, mechanization of coal mines = Rs.17 million + Rs. 10 million for Geological Survey). | Rs. 18 million | Rs. 21 million | Royalty will increase by Rs. 2.4 million | Rate of Royalty :—<br>(*i*) New oil 12½% of pit value.<br>(*ii*) Other mines 5% of pit value. |
| 6. | *Water Supply* .. | Rs. 20 million | Rs. 11 million | .... | Nil | |
| 7. | *Technical Training, Polytechnics, etc.* | Rs. 70 million | Rs. 50 million | .... | ... | |
| | Total .. | Rs. 2,400 million | Rs. 1,000 million | Rs. 5,181 million | Rs. 81.9 million<br>say Rs. 82 million | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | *Educational and Cultural Development.* | Rs. 48,094,800 Say Rs. 48 million will be Government share of the total expenditure of Rs. 96,189,600, say Rs. 96 million | Only building material will cost Rs. 18,520,000, say Rs. 19 million, of which cost of import will be roughly Rs. 9,260,000, say Rs. 9 million | .... | Recurring expenditure of Rs. 83,312,130, say Rs. 83 million p.a. will be incurred by Government. An equal amount is expected to be spent per annum out of public funds.. | To be financed out of Revenue surpluses of Provincial Governments. |
| 9. | *Health* .. | Rs. 39,750,000 say Rs. 40 million | Building material will cost about Rs. 20 million, of which imports will be of the value of about Rs. 7 million | .... | Recurring expenditure of Rs. 35,440,800, say Rs. 35 millions p.a. will be incurred by Government. | To be financed out of Revenue surpluses of Provincial Governments. |
| | Total .. | Rs. 88 million | Cost of building material } Rs. 39 million<br>Cost of material to be imported } Rs. 16 million | | Total recurring expenditure } Rs. 118 million per annum | To be financed out of Revenue surpluses of Provincial Governments. |

## SUMMARY OF AGRICULTURE PLAN

| Serial No. | Item. | Total cost provided. | Government expenditure. | Total tonnage of increase in annual production. | Total value of increase in production. | Machinery required. | Effect on foreign exchange earnings. |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | *Cereals* .. | For series Nos. 1, 2, 3, 4, 6, 9, 10, 11, 13 and 14 the schemes approved by Development Board will cost Rs. 461,000,000. Other schemes in execution and not approved by Development Board are expected to cost Rs. 274,800,000. This makes a total of Rs. 735,800,000 or say Rs. 736,000,000. | Rs. 735,8000,000 (All the expenditure in column 3 will be Government expenditure.) | 1,700,000 tons. | Rs. 355,000,000 | Total number of tractors required will be 984 on Government account. An equal number may be expected to be imported no private account during the 1951-57 period. | Increase in earnings Rs. 55,000,000. |
| 2 | *Pulses* .. | Do. .. | Do. | 800,000 tons | Rs. 225,000,000 | .. | Nil. |
| 3 | *Vegetables* .. | Do. .. | .. | 1,000,000 tons | Rs. 140,000,000 | .. | Nil. |
| 4 | *Oil Seeds* .. | Do. .. | As in case of item 1 | 695,000 tons of seeds or 188,200 tons of oil. | Rs. 263,000,000 | .. | Will save us the present expenditure on import, of vegetable oils valued at Rs. 14,600,000. |
| 5 | *Sugarcane* .. | Do. .. | Do. | 708,000 tons of sugar, of which 100,000 tons will be refined sugar. | Rs. 172,000,000 | .. | Foreign exchange saving will be of Rs. 45,000,000. |
| 6 | *Fruits* .. | Rs. 1,000,000 | Rs. 1,000,000 | 1,950,000 tons | Rs. 546,000,000 | Power sprayers. Power dusters. Cost Rs. 700,000 | Earnings will rise by Rs. 220,000,000. |
| 7 | *Fish* .. | Rs. 10,000,000 | Say Rs. 2,500,000 (if Government subsidize at 25% of expenditure of fishermen). | 355,000 tons | Rs. 90,000,000 | Engines for boats, 700. Launches, 12. | Earnings wil rise to Rs. 112,000,000 as against the present income of Rs. 5,300,000. Net increase Rs. 107,000,000. |
| 8 | *Tea* .. | Negligible. | Nil | 6,600,000 lbs. | Rs. 10,000,000 | .... | Net earnings will rise by Rs. 20,000,000. |
| 9 | *Tobacco* .. | As in case of item 1 above | .. | 15,000 tons | Rs. 34,000,000 | Nil | Will be able to save Rs. 30,000,000 per annum of exchange. |
| 10 | *Cotton* .. | Do. .. .. | | 400, 000 bales | Rs. 140,000,000 | Nil | Will effect exchange earnings by Rs. 120,000,000, if only 100,000 bales of cloth are imported in 1957. N.B.—This is after raising consumption from 9 yards per head per annum to 17 yards of cloth per head per annum. |
| 11 | *Jute* .. | Do. .. .. | | 880,000 bales | Rs. 75,000,000 | Nil | Will raise earnings of foreign exchange to Rs. 850,000,000 from Rs. 700,000,000. Net increase by Rs. 150,000,000. N.B.—This is after meeting internal demand of jute manufactured valued at Rs. 25,000,000. |
| 12 | *Wool* .. | Do. .. .. | | 5,700,000 lbs. | Rs. 5,700,000 | Nil | Our exports worth Rs. 31,500,000 will go down to Rs. 16,500,000. Besides we will import wool worth Rs. 18,000,000. Our exports of carpets and saving on import of woollen manufactures will ultimately result in earnings of Rs. 60,000,000. |
| 13 | *Forest* .. | Do. .. .. | | 2,000,000 tons | Rs. 252,000,000 | Machinery will have to be imported for exploitation of East Pakistan teak forests. Value not known yet. | Will save imports worth about Rs. 5,000,000. |
| 14 | *Cattle* } | Rs. 20,000,000 | Rs. 10,000,000 | 1,300,000 tons | Not estimated | .... | No special effect. |
| 15 | *Milk* } | | | | Rs. 74,000,000 | .... | ..... |
| 16 | *Fodder* .. | As in case of item 1 | As in case of item 1 | 48,000,000 tons | Rs. 1,440,000,000 | .... | ..... |
| 17 | *Hides and Skins* | Do. | Do. | 2,300,000 pieces (1,000 tons) | Rs. 10,000,000 | .... | ..... |
| 18 | *Seed Farms* .. | Rs. 100,000,000 | Rs. 100,000,000 | | Effect taken into consideration in the above items. | | |

SUMMARY OF AGRICULTURE PLAN—*continued.*

| Serial No. | Item. | Total cost provided. | Government expenditure. | Total tonnage of increase in annual production. | Total value of increase in production. | Machinery required. | Effect on foreign exchange earnings. |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 19 | *Anti-Water-logging* | Rs. 124,000,000 | Rs. 124,000,000 | 50,000 tons | Rs. 13,000,000 | .... | ..... |
| 20 | *Medicinal Herbs* | Rs. 1,000,000 | Rs. 1,000,000 | .. | .... | .... | ..... |
| | Total .. | Rs. 992,000,000 | Rs. 994,300,000 | 1. 6,853,000 tons of various crops.<br>2. 6,600,000 lbs. of tea.<br>3. 5,700,000 lbs. of wool.<br>4. 1,280,000 bales of cotton and jute.<br>5. 5,000,000 tons of forest produce.<br>6. 2,300,000 pieces (1,000 tons) of hides and skins.<br>7. 48,000,000 tons of fodder.<br>8. 1,300,000 tons of milk and products. | Rs. 3,844,700,000 say Rs. 3,845,000,000 | 1. About 2,000 tractors.<br>2. 700 engines for fishing boats.<br>3. 12 launches.<br>4. Power sprayers and dusters.<br>5. Machinery for exploitation of teak-wood forests.<br>6. Machinery for irrigation projects.<br>Value of the above is estimated at Rs. 195,000,000 | Will improve foreign exchange earnings by, Rs. 826,600,000. |
| | | Out of this, about Rs. 172,000,000 would have been spent on the schemes referred to above, before July, 1951. | Amount spent Rs. 172,000,000 | 55,000,000 tons | | | |
| | | Balance of expenditure will therefore be Rs. 820,000,000. | Balance Rs. 802,300,000 | | | | |

| Item | 1949 production. | | | Average yield per acre. | | | 1949 per capita consumption. | | International standard of consumption per capita. | Unit capita pe for |
|---|---|---|---|---|---|---|---|---|---|---|
| | East Pakistan. | West Pakistan. | Total. | Pakistan. | Other countries. | | East Pakistan. | West Pakistan. | | |
| | | | | | Name | Yield. | | | | |
| 1 | 2 | | | 3 | | | 4 | | 5 | |
| 1. *Cereals* | 7,710,800 tons<br>19[illegible]3,000 acres | 5,998,200 tons<br>17,72[illegible],000 acres | 13,709,000 tons<br>37,33[illegible],000 acres | *Wheat.*<br>(West Pakistan)<br>850 lb.<br><br>*Rice.*<br>(East Pakistan)<br>890 lb.<br><br>*Rice.*<br>(West Pakistan) | *Wheat.*<br>India ... 810 lb.<br>Germany (1940) 2,200 lb.<br>Italy (1940) 1,350 lb.<br><br>*Rice*<br>India ... 800 lb.<br>China ... 1,400 lb.<br>U S A. ... 1,450 lb.<br>Egypt ... 2,000 lb.<br>Japan ... 2,300 lb.<br>Italy ... 3,030 lb.<br>(p. 18 Development of Agriculture, Imperia Council of Agricultural Research.) | | 330 lb per head per annum | 368 lb. per had per annum | 365 lb. per head per annum | 365 lb pe per ann |
| 2. *Pulses including Gram.* | 6[illegible],000 tons<br>1,569,000 acres (1947-48) | 716,000 tons<br>3,4[illegible]5,000 acres | 1,337,00[illegible] tons<br>4,984,000 acres | 580 lbs per acre | | | 8 oz. per head per day, after deducting 50% of production as cattle feed, wastage, etc. | | 3 oz. per head per day | 1.2 oz. per per day |
| 3. *Vegetables* | 1,050,285 tons<br>537,200 acres | 400,000 tons (Estimated)<br>184,413 acres | 1,459,285 tons<br>721,613 acres | — | — | — | — | 1·58 oz. per head per day excluding wastage at 12½% | 6 oz. per head per day | 2·4 oz. per per day |
| 4. *Seeds*<br>*Oil* (Oils and fats) | 118,000 tons of rape/mustard seeds = 35,400 tons of oils.<br>Acres: 658,000. | 188,000 tons of rape, etc, seeds = 56,400 tons of oils.<br>Acres: 1,123,000. | 306,000 tons of seeds or 91,800 tons of oils.<br><br>Total acreage: 1,787,000. | *Rape/Mustard.*<br>East Pakistan, 40[illegible] lb. of seeds<br>West Pakistan, 375 lb. of seeds. | | | 12 oz. per head per day | ·54 oz. per head per day or on the whole 3 oz per head per day | 1.5 oz. per head per day of all kinds of fats and oils. | 0·5 oz. p per day |

Total consumption of fats and oils being:—

| | *East* Tons | *West* Tons |
|---|---|---|
| Ghee and animal oils. | 24,200 | 108,870 |
| Rape mustard oils. | 35,400 | 56,400 |
| Cotton seed oil | ... | 30,000 |
| Imports ... | 10,000 | ... |
| | 61,600 | 195,270 |
| Grant Total .. | 254,870 tons | |

| | 1949 per capita consumption. | | International standard of consumption per capita. | 1957 requirement. | | | | | Increase in production required by 1957. | | | Increase in prod |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | East Pakistan. | West Pakistan. | | Unit per capita provided for. | Total. East Pakistan. | Total. West Pakistan | Industrial East Pakistan. | Industrial West Pakistan. | Grand Total. | East Pakistan. | West Pakistan. | Total. | East Pakistan. |
| | 4 | | 5 | 6 | | | | | | 7 | | | |
| | 330 lb per head per annum | 368 lb. per had per annum | 365 lb. per head per annum | 365 lb per head per annum | 8.52 million tons | 6 26 million tons | Nil | Say 110,000 tons for starch, etc., production | 14,880,000 tons | 809,200 tons | 371,800 tons | 1,181,000 tons | 400,000 tons Total production of cer 15,40 |
| | 8 oz. per head per day, after deducting 50% of production as cattle feed, wastage, etc. | | 3 oz. per head per day | 1.2 oz. per head per day | 1·3 million tons | ·84 million tons | .. | .. | 2 14 million tons | 58 million tons | ·22 million tons | ·8 million tons | 75,000 tons |
| — | 1·58 oz. per head per day excluding wastage at 12½% | | 6 oz. per head per day | 2·4 oz. per head per day | 1·66 million tons | ·74 million tons | .. | .. | 2·5 million tons | ·64 million tons The additional production will raise per capita consumption to 2·45 oz. per head per day excluding wastage at 12½% | 34 million tons | ·98 million tons | One million |
| 12 oz. per head per day | ·54 oz. per head per day or on the whole 3 oz per head per day | | 1.5 oz. per head per day of all kinds of fats and oils. | 0·5 oz. per head per day | 525,000* tons of seed of all type excluding cotton-seed. | 295,000* tons | 10,000* tons | 50,000* tons | E. 535,000 tons W. 345,000 tons 880,000 tons | 417,000 tons | 157,000 tons of seeds | 574,000 tons | — 174,0 of se wast Efforts should be made crop in the country. |

Total consumption of fats and oils being:—

| | *East* Tons | *West* Tons |
|---|---|---|
| Ghee and animal oils. | 24,200 | 108.870 |
| Rape mustard oils. | 35,400 | 56.400 |
| Cotton seed oil | ... | 30,000 |
| Imports ... | 10,000 | ... |
| | 61.600 | 195,270 |
| Grant Total .. | 256,870 tons | |

*After excluding other forms of available fats and oils.

| production required by 1957. | | Increase in production by 1957 aimed at. | | | Methods proposed for increasing production. | Overall surplus/deficit by 1957 | Value of total increase in production by 1957. | Value of exports/imports in 1957. |
|---|---|---|---|---|---|---|---|---|
| West Pakistan. | Total. | East Pakistan. | West Pakistan. | Total. | | | | |
| 7 | | 8 | | | 9 | 10 | 11 | 12 |
| 371,800 tons | 1,181,000 tons | 400,000 tons | 1,300,000 tons | 1,700,000 tons<br>Total production of cereals by 1957 should then be 15,409,000 tons | (*a*) By increased acreage :—<br>E. Pakistan 100,000 acres<br>W. Pakistan 3,000,000 acres<br>(*b*) By use of fertilizers and organic manures :—<br>E. Pakistan 19,500 tons chemical<br>39,000 tons organic<br>W. Pakistan 10,000 tons chemical<br>20,000 tons organic<br>(*c*) By intensive cultivation by the use of tractors, etc. | E. Pakistan — 409,200 tons<br>W. Pakistan + 928,200 tons<br>} 519,000 tons surplus | Rs. 355 million at Rs. 203/- per ton or Rs. 7/4 per maund average.<br>5 lac tons inferior rice at Rs. 9/- and 2 lac tons superior rice at Rs. 15/- plus 10 lac tons wheat at Rs. 6/-. | Value of exports :—<br>Approximately £ 14 million or Rs. 136 million at £27/- per ton f.o.b., Karachi. |
| 2 million tons | ·8 million tons | 75,000 tons | 725,000 tons | 800,000 tons | (*a*) By increasing acreage :—<br>E. Pakistan Nil<br>W. Pakistan 2,500,000 acres<br>(*b*) By use of fertilizers and organic manures :—<br>E. Pakistan 8,000 tons chemical<br>16,000 tons organic<br>W. Pakistan 5,000 tons chemical<br>10,000 tons organic<br>(*c*) By intensive cultivation. | Nil when consumption is taken at 1·2 oz. per head per day. | Value of increased production of 8 million tons at Rs. 10/- per maund is Rs. 225 million. | Nil. |
| 34 million tons<br>roduction will raise per capita ·45 oz. per head per day excluding % | ·98 million tons | One million tons per annum | | | No special acreage is required to be reserved for increasing vegetable production except near the big cities, which will be a small area. Only propaganda in favour of larger consumption of vegetables will be sufficient to produce larger quantities as supplementary crops. Vegetable seed production schemes of Baluchistan can be expanded in due course to produce larger quantities of seeds of English varieties of vegetables. Stress will be laid on paying special attention to the production of potatoes and other tubers, particularly in East Bengal. | Nil at the suggested rate of 2·4 oz. per head per day. | Value of increase in production Rs. 140 million at Rs. -/2/- per seer. | — |
| 157,000 tons of seeds | 574,000 tons | — | 174,000 tons of oil or 675,000 tons of seeds, after providing for 15% wastage.<br>Efforts should be made to popularize castor seed crop in the country. | | (*a*) By increased acreage :—<br>E. Pakistan Nil.<br>W. Pakistan 3,000,000 acres<br>(*b*) By use of fertilizers and organic manures :—<br>E. Pakistan 5,000 tons chemical<br>10,000 tons organic<br>W. Pakistan 15,000 tons chemical<br>30,000 tons organic<br>(*c*) By intensive cultivation with tractors, etc. | Deficit/Surplus—Nil, at the suggested rate of consumption of ·5 oz. per head per day instead of the required rate of 1·5 oz. per head per day.<br>In 1957, total consumption of fats and oils should be :— | Value of 188,200* tons of increased production of oil is Rs. 263 millions at Rs. 50/- per maund.<br>*Including cotton seed oil. | Nil—we may be able to stop the present imports of oil, the cost of which is estimated at Rs. 22 million. |

| | East Pakistan. Tons. | West Pakistan. Tons. | Total. Tons. |
|---|---|---|---|
| Ghee and animal fats. | 13,400<br>2,000 | 100,000<br>14,200 | |
| | 15,400 | 114,200 | 129,600 |
| Animal fats. | 12,000 | 23,000 | 35,000 |
| Khopra | 30,000 | — | 30,000 |
| Cotton seed oil. | — | 34,200 | 34,200 |
| Other oils | 30,000 | 235,800 | 265,800 |
| Total | 87,400 | 407,200 | 494,600 |

Quantity to be consumed by Industry = 60,000 tons.
Quantity to be consumed by human beings = 434,600 tons. This will raise per capita consumption to ·5 oz per head per day.

| Item. | 1949 production. | | | Average yield per acre. | | | 1949 per capita consumption. | | International standard of consumption per capita. | Unit per capita provided for. |
|---|---|---|---|---|---|---|---|---|---|---|
| | East Pakistan. | West Pakistan. | Total. | Pakistan. | Other countries. | | East Pakistan. | West Pakistan. | | |
| | | | | | Name | Yield. | | | | |
| 1 | 2 | | | 3 | | | 4 | | 5 | |
| 5. *Sugar-Cane* ... | 341,000 tons of all types of sugar and gur. Refined sugar was only 41,000 tons<br>*Acreage*<br>225,000 | 678,000 tons<br>489,000 | 1,019,000 tons<br>714,000 | I. Pakistan sugar-cane yields about 9% sugar. India (U.P.) yield went up to 12% in some areas.<br>II. Production per acre of sugar-cane is:—<br>West Pakistan .. 12·6 tons<br>East Pakistan ... 13·5 tons | | | On the whole consumption has been 30 lb. per head per annum. | | Consumption; (per head per annum)—<br>U.K. ... 112 lb.<br>U.S.A. ... 103 lb.<br>Japan ... 29 lb.<br>Australia 114 lb. | 2 oz. per head per day or 46 lb. per head per annum. |
| 6. *Fruits* ... | 1·0 million tons<br>Acres: 200,000 | 1·2 million tons<br>Acres: 223,000 | 2·2 million tons | – | | | About 2 oz. per head per day. | | 3 oz. per head per day. | 3 oz. per head per day. |
| 7. *Fish* .. | 40,000 tons | (Excluding N W F P.) 36,950 tons. | 76,950 tons | 4 maunds per acre. | | | ·080 oz. per head per day. | ·494 oz. per head per day. | Fish, meat and eggs at 2·5 oz per head per day. For fish alone, 1 oz. per head per day may be taken as a reasonable basis. | *E. Pakistan* ·6 oz. per head per day.<br>*W. Pakistan* ·22 oz. per head per day. |
| 8. *Tea* ... ...<br>*Note.*—Under International Tea Agreement Pakistan entitled to a standard acreage of 76,700 only plus 2 per cent. increase every year. | 45,000,000 lb.<br>74,364 acres | – | 45,000,000 lb.<br>74,364 acres | 605 lb. per acre | – | – | – | | Total for whole of Pakistan, say 4 oz. per capita—this is derived on basis of estimated consumption of 20 million lb. tea per year—most of which is consumed in West Pakistan. | |

| capita ption. | International standard of consumption per capita. | 1957 requirement. | | | | | | Increase in production required by 1957. | | | Increase in production by 1957 aimed at. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unit per capita provided for. | Total. | | Industrial | | Grand Total. | | | | | | |
| West Pakistan. | | | East Pakistan. | West Pakistan | East Pakistan. | West Pakistan. | | East Pakistan. | West Pakistan. | Total. | East Pakistan. | West Pakistan. | Total. |
| | 5 | 6 | | | | | | 7 | | | 8 | | |
| onsumption has ead per annum. | Consumption; (per head per annum)— U.K. ... 112 lb. U.S.A. ... 103 lb. Japan ... 29 lb. Australia 114 lb. | 2 oz. per head per day or 46 lb. per head per annum. | 932,000 tons | 735,000 tons | Nominal | | 1,727,000 tons | 651,000 tons | 57,000 tons | 708,000 tons | 30,000 tons | 678,000 tons | 708,000 tons of which refined sugar will be 1 lac tons. |
| | | | | | | | | | | | *Total acreage aimed at by* 1957 | | |
| | | | | | | | | | | | 654,525 acres | 529,935 acres | 1,184,460 acres |
| ead per day. | 3 oz. per head per day. | 3 oz. per head per day. | 1·95 million tons | 1·42 million tons | 550 tons | 4,500 tons | Say 3·4 million tons | ·95 million tons | ·25 million tons | 1·20 million tons | ·95 million tons | 1·0 million tons | 1·95 million tons |
| ·94 oz. per head per day. | Fish, meat and eggs at 2·5 oz per head per day. For fish alone, 1 oz. per head per day may be taken as a reasonable basis. | *E. Pakistan* ·6 oz. per head per day. *W. Pakistan* ·22 oz. per head per day. | 368,000 tons | 102,000 tons | 12,000 tons* | 8,000 tons* | 430,000 tons | 500,000 tons | 240,000 tons | 740,000 tons | 280,000 tons | 75,000 tons* | 355,000 tons |
| | | | | | *Rough estimate by Dr. Rahim Ullah Khan. | | | | | | *Even this will leave sufficient surplus since the population is not accustomed to fish eating and any higher target will, if achieved, be wasted. Consumption of these quantities will raise per capita consumption to ·6 oz. per head per day in E. Bengal and ·22 oz. per head per day in West Pakistan. | | |
| otal for whole of Pakistan, say 4 oz. per capita—this is derived on basis of estimated consumption of 20 million lb. tea per year—most of which is consumed in West kistan. | | | | | | | 23,000,000 lb. At current rate of consumption for increased population. | Nil. Only a change in taste and evolution of suitable blends is required. | | | 6·6 million lb. | | |

| | Increase in production required by 1957. | | Increase in production by 1957 aimed at. | | | Methods proposed for increasing production. | Overall surplus/deficit by 1957. | Value of total increase in production by 1957. | Value of exports/imports in 1957. |
|---|---|---|---|---|---|---|---|---|---|
| | West Pakistan. | Total. | East Pakistan. | West Pakistan. | Total. | | | | |
| | 7 | | 8 | | | 9 | 10 | 11 | 12 |
| | 57,000 tons | 708,000 tons | 30,000 tons | 678,000 tons | 708,000 tons of which refined sugar will be 1 lac tons. | (a) By increased acreage :— E. Pakistan ... 14,500 acres W. Pakistan ... 455,500 acres<br>(b) By use of fertilizers :— *Chemical* / *Organic*: E. Pakistan 5,000 tons / 10,000 tons; W. Pakistan 5,000 tons / 10,000 tons<br>(c) By intensive cultivation and use of improved varieties of seeds, for which research scheme in N.W.F.P. has been sanctioned. | Nil | (i) Value of 100,000 tons of refined sugar at Rs. 450 per ton (Rs. 16 per maund) = Rs. 45 million.<br>(ii) Value of gur, etc. (455,000 tons) at Rs. 10 per maund = Rs. 127 million.<br>Total = Rs. 172 million. | Nil export<br>Nil import<br>But will save present cost of imports estimated at Rs. 45 million. |
| | *Total acreage aimed at by 1957* | | | | | | | | |
| | 654,525 acres | 529,935 acres | 1,184,460 acres | | | | | | |
| ns | ·25 million tons | 1·20 million tons | ·95 million tons | 1·0 million tons | 1·95 million tons | Sprayers and power pumps if properly employed to the following extent should be able to raise the present yield by at least 25% to 50%. Simultaneously the proposed improvement in the transport of fruits will save about 10% of the fruit from destruction. These measures will raise *fruit supply* by 40% at least of present production, *i.e.*<br>*East* ·4 million tons; *West* ·5 million tons; *Total* ·9 million tons<br>Grant Total : 1·9 million tons.<br>*Nurseries* controlled by Government to supply suitable plants should be set up. The cost of such nurseries will not be heavy.<br>The cost of these schemes is estimated at Rs. 1 million over the period 1951-57. | *Surplus*<br>·75 million tons *fresh fruits* = ·20 million tons or 200,000 tons *dried*. | Value of increase in production :— Rs. 540 million at annas 0-5-0 per seer. | *Exports*<br>Rs. 224 million at Re. 1 per seer of dried fruits.<br>Exports during 1949-50 only Rs. 3 million. |
| s | 240,000 tons | 740,000 tons | 280,000 tons | 75,000 tons* | 355,000 tons | I. Mechanization of boats and introduction of improved gear :— E. Pakistan ... 400; W. Pakistan ... 300<br>II. Carrier launches with refrigator holds :— E. Pakistan ... 8; W. Pakistan ... 4; Total 12<br>III. Cultural methods.<br>IV. Conservation measures and protection of young fish.<br>This is based on the recommendations of the F.A.O. expert called in by Government of Pakistan. Government have not as yet taken any decision. A Directorate of fish development is proposed to be set up as a first step.<br>Total cost of Fisheries Development scheme—Rs. 10 million. | Deficit ... 310 000<br>*Increase in production :*<br>*Fish.* *East.* 7 times or 280,000 tons. *West.* 2 times or 75 000 tons.<br>*Fish Oil.* *East.* 20,000 galls. *West.* 5,000 galls. value : Rs. 70 per gall. | (a) *Fish Value* Rs. 88·8 millions at Rs. 250 per ton.<br>(b) *Fish oil* Rs. 1,750,000 at Rs. 70 per gallon.<br>Total Rs. 90 million. | (1949) Present export is about 4,250 tons per annum. The increase in fish supply of 355,000 tons can be expected to make available a surplus of 25 per cent, or say 90,000 tons, value of which F.O.B. Karachi/Chittagong may be Rs. 112 million at 4,250 tons for 5,270,000. (1949 export figure.) |
| nge and of ds | 6·6 million lb. | | | | | (a) By increased acreage in E. Pakistan to the extent of 9,000 acres.<br>(b) Increased use of fertilizers, mainly chemical. | 40 million lb. surplus. 10 million lb. import of good quality. | Total produced valued at Rs. 78 millions (for total production of say 52 million lb at Rs. 1/8 per lb.)<br>Value of increase in production is Rs. 10 million at Rs. 1/8 for 6·6 million lb. | *Exports* Rs.80,000,000 (for 60 million lb.)<br>*Imports* Rs.40,000,000.<br>Nett earning: Rs.20 million. |

| Item. | 1949 production. | | | Average yield per acre. | | | 1949 per capita consumption. | | International standard of consumption per capita. | Unit per capita provided for. |
|---|---|---|---|---|---|---|---|---|---|---|
| | East Pakistan. | West Pakistan. | Total | Pakistan. | Other countries. Name. | Other countries. Yield. | East Pakistan. | West Pakistan. | | |
| 1 | 2 | | | 3 | | | 4 | | 5 | |
| 9. *Tobacco* ... ... | Separate figures not known. | | 140,000 tons (1947—48). 326,000 acres (1947—48). | 962 lb per acre | U.S.A. ... ... Canada ... ... Argentine ... ... | 1,180 1,133 841 | — | — | — | In some countries consumption is 4 lb. per capita per annum. At this rate requirements as shown in the next columns. |
| 10. *Cotton* ... ... | 15,000, bales (400 lb.). 55,000 acres. | 1,105,000 bales (400 lb.). 2,649,000 acres | 1 12 million bales. 2,704,000 acres | 166 lb. per acre (1948-49). Highest 205 lb. per acre (1942-43). | Indian Republic ... Egypt ... ... China .. ... U.S.A. ... ... U.S.S.R. ... ... (Source : "The Silver Fibre," page 50.) | *lb per acre* 88 475 142 234 333 | Home textiles mills ... Hand loom ... ... Imported .. ... Total supply ... On the basis of current supply of local and imported cloth, consumption per capita comes to about 9 yards only per annum. *400,000 hand looms working at 300 days in a year and producing at an average rate of 15 yards per day are capable of manufacturing 1,800 million yards of cloth. But the looms are not working even to one quarter of their capacity. | *per million* lb. 100 400* 200 700 | U.S.A 46 yards per head per year. | Cloth requirements put 17 yards per head per year |
| 11. *Jute* ... ... | 1,019,000 tons or 6 million bales. 1,877,000 acres | — — — | 1,019,000 tons or 6 million bales. 1,877,000 acres | 1,240 lb. per acre. | (Experts' objective is 1,640 lb. per acre) | | — | — | — | — |
| 12. *Forests* . Wood production | Area under forests 8,595 sq. miles | Area unner forests 5,897 sq. miles | 5.0 million tons at ½ ton per acre average. 14,492 sq. miles or 9·3 million acres. | | *Forest areas: Percentage of total areas* Pakistan ... ... 5% Austria ... ... 38% United Kingdom ... 6% Siredem ... ... 55% Russia ... ... 44% Netherlands ... 8% Belgium ... ... 18% Poland ... ... 23% Indian Republic ... 15% (Akhtar, page 5.) | | 110 lb. per capita | 64 lb. per capita. Average 90 lb. per capita for whole of Pakistan. | In Pakistan minimum requirement of fuel for daily cooking is estimated at 10-15 lb. per family of five. This is, say, 800 lb. per capita p. a. (*See* Forest Conference Proceedings.) | — |

(Source : Economic Survey, page 21)
(1 sq mile=640 acres)

## AGRICULTURE—*contd.*

| 1949 per capita consumption. | | International standard of consumption per capita. | 1957 requirement. | | | | | Increase in production required by 1957 | | | Increase in production by 1957 aim | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unit per capita provided for. | Total. | | Industrial. | | Grand Total. | | | | | |
| | West Pakistan. | | | East Pakistan. | West Pakistan. | East Pakistan. | West Pakistan. | | East Pakistan. | West Pakistan. | Total. | East Pakistan. | West Pakistan. |
| 4 | | 5 | 6 | | | | | | 7 | | | 8 | |
| — | — | In some countries consumption is 4 lb. per capita per annum. At this rate requirements are as shown in the next columns. | 91,562 tons. | 60,290 tons. | 937·5 tons | 2,210 tons | 155,000 tons | | — | 15,000 tons | — | — | 15 |
| | | | | | 3 147 5 tons | | | | | | | | |
| | *per million* lb. | U.S.A 46 yards per head per year. | Cloth requirements put at 17 yards per head per year | 50,000 bales | 90,000 bales | 280,000 bales* of cotton. *Will be sufficient to produce about 900,000 bales of cloth and yarn. | 500,000 bales* | 920,000 bales | It is desirable that cotton production of Pakistan should step up to 1.52 million bales so as to have about 600, 000 bales of raw cotton for export. In other words an increase of 400,000 bales in production is required. | | 5,000 bales | 395,000 lac bales. | 400,0 |
| les mills ... | 100 | | | | | | | | | | | | |
| ... ... | 400* | | | | | | | | | | | | |
| ... ... | 200 | | | | | | | | | | | | |
| upply ... | 700 | | | | | | | | | | | | |
| is of current supply of d imported cloth, con- per capita comes to yards only per annum. and looms working at s in a year and pro- at an average rate of s per day are capable of turing 1,800 million cloth. But the looms working even to one of their capacity. | | | | | | | | | | | | | |
| — | — | — | — | — | — | — | — | 1,200,000 bales required for 6,000 looms by 1957. | Nil | | — | — | 600,00 By rais to 1 pe |
| lb. | 64 lb. | In Pakistan minimum requirement of fuel for daily cooking is estimated at 10-15 lb. per family of five. This is, say, 800 lb. per capita p. a. (*See* Forest Conference Proceedings.) | — | — | — | — | — | Present forest acreage is only 4·5% of total. Ultimately at least 25% shall be under forests. For the present only 1% increase in acreage is contemplated in view of need for wood production. | | | — | — | 5,000,0 |
| pita | per capita | | | | | | | | | | | | |
| ge 90 lb. per capita whole of Pakistan. | | | | | | | | | | | | | |

| roduction required by 1957 | | Increase in production by 1957 aimed at. | | | Methods proposed for increasing production. | Overall surplus/deficit by 1957. | Value of Total increase in production by 1957. | Value of exports/imports in 1957. |
|---|---|---|---|---|---|---|---|---|
| West Pakistan. | Total. | East Pakistan. | West Pakistan. | Total. | | | | |
| 7 | | 8 | | | 9 | 10 | 11 | 12 |
| — | 15,000 tons | — | — | 15,000 tons | (*a*) By growth of the Virginia variety.<br>(*b*) By increased use of fertilizers:<br>Chemical ... 2,500 tons<br>Organic ... 5,000 tons | — | Value of increase in production : Rs. 33,600,000.<br>Value of total production at Re. 1/- per lb. (Rs. 80/- per md. of 82 lb.) Rs. 347·2 million. | Manufactured tobacco (cigars, etc., included) imported during 1949–50 was Rs. 3,038,183 (say Rs. 30 million) and Virginia tobacco was Rs. 5 million. In view of local manufacture of cigarettes etc., imports will be cut down considerably resulting in saving of foreign exchange to the extent of, say, Rs. 30 million. Imports of superior varieties of foreign cigarettes, etc., may continue up to a value of Rs. 5 million (Rs. 5,000,000). |
| cotton production of Pakistan 1.52 million bales so as to have es of raw cotton for export. In ncrease of 400,000 bales in pro-. | 5,000 bales | 395,000 lac bales. | 400,000 bales | (*a*) *By increased acreage*<br>E. Pakistan 15,000 acres<br>W. Pakistan 780,000 acres<br>(*b*) *By use of fertilizers*<br>*Chemical* *Organic*<br>E. Pakistan Nominal Nominal<br>W. Pakistan 2,000 tons. 4,000 tons.<br>(*c*) By intensive cultivation and better seeds evolved by P.C.C.C. | Surplus of 600,000 bales after meeting requirements of indigenous industry. | Increase in value of production will be Rs. 140 million. Rs. 500 million at Rs. 340 per bale for 1.5 million bales.<br>Total production valued at | *Exports*<br>Rs.210 million at Rs. 350/- for 6 lac bales. Imports of 1 lac bale of cloth will cost Rs 150 million. Nett earning expected Rs. 60 million.<br>*Present.* 1957.<br>Export cotton earning, million... Rs. 355 million. Rs. 210 million.<br>Import of yarn and cloth. Rs.415 million (300,000 bales). Rs.150 millllion (100,000 bales).<br>Net gain—Rs. 120 million. |
| Nil | — | — | 600,000 bales<br>By raising yield to 1,360 lb. per acre. | — | *See* column No. 12 | Value of increased production is Rs. 75 million.<br>Total production :<br>6·6 million bales.<br>Value at Rs. 125/- per bale equals Rs. 825 million. | *Exports*<br>Raw jute, 5·4 million bales.<br>(*a*) *To India*<br>3.4 million bales, value Rs.425 million.<br>(*b*) *To other Countries*<br>I. 2·0 million bales, value Rs. 275 million.<br>II. Value of jute manufactured, produced and consumed internally Rs. 25 million.<br>III. Exports of jute manufactures (55,000 tons), will bring, say, Rs. 125 million.<br>Total Rs. 850 million. |
| reage is only Ultimately at e under forests. nly 1% increase ontemplated in ood production. | — | — | 5,000,000 tons | (*a*) 500,000 acres on newly irrigated land under new projects the areas being carefully selected so as to avoid waste in land utilization-4,000,000 tons at 8 tons per acre.<br>(Presume irrigated forests will start yielding fuel wood in 4/5 year time.)<br>(*b*) East Bengal Government are negotiating with firms for exploitation of *teak forests*. The scheme is expected to yield considerable supply of teak wood. | | (*a*) Value of increase in production at Re. 1/- per md. equals Rs. 112 million.<br>(*b*) By exploitation of East Bengal's teak wood *forests*, which is under active consideration, increase in value of forest produce to the extent of Rs. 140 million per annum may be expected.<br>Total : Rs. 252 million. | |

| Item. | 1949 production. | | | Average yield per acre. | | | 1949 per capita consumption. | | International standard of consumption per capita. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | East Pakistan. | West Pakistan. | Total. | Pakistan. | Other countries. | | East Pakistan. | West Pakistan. | | Unit per capita provided for. | |
| | | | | | Name. | Yield | | | | | |
| 1 | 2 | | | 3 | | | 4 | | 5 | | |
| *Wool* .. . | 2·5 million lb. | 24·5 million lb. | 27 million lb. | 3·5 lb. per sheep | ... | ... | Internal consumption was negligible<br>*Exports*<br>23,714,195 lb. (1949-50) Rs. 31,632,092 (1949-50) | | ... | | |

*Number of live-stock (excluding sheep, goats, pigs).*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Cattle Wealth* ... | 15·3 million | 16·4 million | 31,774,600 | ... | ... | .. | ... | .. | ... | *Total estimated population*<br>*East Pakistan.*<br>18,451,200<br>(10 millions of thi<br>total porulation | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Milk* ... ... | ·96 million tons | 4·6 million tons | 5,565,250 tons | | | | *East Pakistan.* 1·2 oz. per head per day. | *West Pakistan.* 3·5 oz. per head per day of pure milk. (If milk products like gurd, lassi, etc., are taken into account the consumption works out to 8 oz. per head per day.) | 8 oz. per head per day or alternatively 2·5 oz. of meat, fish and eggs. | *East Pakistan* 2 oz. per head per day.<br>*West Pakistan* 4 oz. per head per day. | 2,14 mi |
| Quantity consumed as Milk and Milk Products (excluding Ghee and butter) | | | | | | | | | | | |
| ·66 million tons | 3·1 million tons | 3,770,000 tons | | | | | | | | | |

| *Breed.* | *Production per day.* |
|---|---|
| Bhagnari | 10-12 lb. |
| Lohani ... | ... 10 lb. |
| Red Sindhi | ... 40 lb. |
| Sahiwal ... | ... 33 lb. |
| Tharparkar | ... 34 lb. |

| 9 per capita nsumption. | | International standard of consumption per capita. | 1957 requirement. | | | | | Increase in production required by 1957. | | | Increase in production by 1957 aimed at | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | West Pakistan. | | Unit per capita provided for. | Total. East Pakistan. | Total. West Pakistan. | Industrial. East Pakistan. | Industrial. West Pakistan. | Grand Total. | East Pakistan. | West Pakistan. | Total. | East Pakistan. | West Pakistan. | To |
| 4 | | 5 | 6 | | | | | | 7 | | | 8 | | |
| al consumption s negligible | | ... | | | 500,000 lb. (handloom) — | 18·0 million lb. + 9 million lb. imported wool. | 18·5 million lb. indigenous wool + 9 million lb. imported wool. 27·5 million lb. | | Nil. | | | | | 5·7 mill (10% in on 27 m lb.) + inc producti accou increa popula sheep. |

*Exports*
lb. Rs. 31,632,092
) (1949-50)

... ... *Total estimated population of cattle in 1957.*

| *East Pakistan.* | *West Pakistan* | *Total* |
|---|---|---|
| 18,451,200 | 19,677,600 | 38,128,800 |

(10 millions of this population are estimated to be minors. Hence 87% of the total porulation is considered for fodder requirements *i.e.*, say 29 millions.)

Rate of increase of bovine population is 45% in 20 years, *i.e.*, 2·25% p.a

2·46 million tons 1·13 million tons 3·6 million tons ·2 million tons 1·1 million tons 1·3 millio

| an. ead | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *West Pakistan.* 3·5 oz. per head per day of pure milk. (If milk products like gurd, lassi, etc., are taken into account the consumption works out to 8 oz. per head per day.) | 8 oz. per head per day or alternatively 2·5 oz. of meat, fish and eggs. | *East Pakistan* 2 oz. per head per day. *West Pakistan* 4 oz. per head per day. | 2,14 million tons | 1·53 million tons | 1·28 million tons | 4·20 million tons | 9·15 million tons |

| Increase in production required by 1957. | | | Increase in production by 1957 aimed at. | | | Methods proposed for increasing production. | Overall surplus/deficit by 1957. | Value of total increase in production by 1957. | Value of exports/imports in 1957. |
|---|---|---|---|---|---|---|---|---|---|
| East Pakistan. | West Pakistan. | Total. | East Pakistan. | West Pakistan. | Total. | | | | |
| 7 | | | 8 | | | 9 | 10 | 11 | 12 |
| Nil. | | | 5·7 million lb. (10% increase on 27 million lb.) + increased production on account of increase in population of sheep. | | | Scheme for wool development already approved for the N.W.F.P. Regions and schemes which other provinces are expected to start on similar lines are expected to step up production by 10 per cent.<br><br>Natural increase due to increased population of sheep in 1957.<br><br>1 million additional sheep will give 3·5 million lb. wool.<br>(Total. 27·0 million lb.<br>2·7 million lb.<br>3·5 million lb.<br>33·2 million lb.<br>Say. 33 million lb. | 15 million lb. surplus. (Out of total production of 33 million lb. expected in 1957, 18 million lb. to be consumed internally and rest for export.)<br><br>Surplus, 15 million lb. | Rs. 33 million<br>(For total production of 33 million lb., at Re. 1/- per lb.) | *Exports*<br>Value of 15 million lb. is Rs. 16·5 million (as say Rs. 1/2 per lb.)<br><br>*Imports*<br>Value of 9 million lb. finer quality at Rs. 2/- per lb. is Rs. 18 million.<br>Adverse blance Rs. 1·5 million.<br>Current imports of manufactured wool:<br>Textiles Rs. 5,653,226<br>Yarn .. Rs. 2,780,191<br>Total ... Rs. 8·433.417 or Rs. 8·4 million.<br>By consuming 18 million lb. of Pakistan wools and exporting 14 million lb., our foreign exchange earning will be reduced from Rs. 32 million to Rs. 16·5 million. Import of wool will cost Rs. 18 million, thus leaving a nett deficit of Rs. 1·5 million. The saving on account of woollen manufactures may, however, be taken as Rs. 8.2 million, plus export earnings of Rs. 50 millions Considering the exports of carpets, etc., the nett gain of foreign exchange will be Rs. 65 million. |

While no schemes have yet been definitely approved with regard to improvement and extension of dairy farms and improvement of livestock, it is realised that it is of urgent importance and provision of Rs. 20 million is recommended under this head.

·46 million tons 1·13 million tons 3·6 million tons ·2 million tons 1·1 million tons 1·3 million tons

(*a*) Increase in production because of increase in bovine population:—

| *East Pakistan.* | *West Paksstan.* | *Total.* |
|---|---|---|
| ·11 million ton | ·67 million ton | ·78 million ton |

(*b*) Increase in production by improvement in breeds, feed, etc:—

| | | |
|---|---|---|
| ·09 million ton | ·46 million ton | ·55 million ton |
| ·2 million ton | 1·13 million tons | 1·33 million tons |

Nil.

Rs. 74 million

| Item. | 1949 production. | | | Average yield per acre. | | | 1949 per capita consumption. | | International standard of consumption per capita. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | East Pakistan. | West Pakistan. | Total. | Pakistan | Other countries. Name | Other countries. Yield. | East Pakistan. | West Pakistan. | | Unit per capita provided for. | |
| 1 | 2 | | | 3 | | | 4 | | 5 | | |
| 16. *Fodder* ... | (1) *Roughages.* 16,793,843 tons | 12,292,512 tons | 29,086,355 tons | ... | ... | ... | ... | ... | ... | *Roughages* *East Pakistan* 15 lb. per day | 39.2 |
| | (2) *Concentrates* — | — | 2,253,500 tons | | | | | | | *West Pakistan* 20 lb. per day | |
| | (Total acreage under Fodder Crops estimated to be 8 million acres—7 million being in West Pakistan. | | | | | | | | | *Concentrates* 1 lb. per day | 2.6 |

| | *Pieces.* | *Pieces.* | *Pieces* |
|---|---|---|---|
| *17. Hides and Skins* | | | |
| Buffaloes ... | 150,000 | 750,000 | 900,000 |
| Cows ... ... | 3,000,000 | 1,518,000 | 4,515,000 |
| Goats ... ... | 3,000,000 | 2,550,000 | 5,550,000 |
| Sheep ... ... | 150,000 | 1,925,000 | 2,075,000 |
| | 6,300,000 | 6,743,000 | 13,040,000 |
| Weight ... | | | 64,950 tons |
| *Total Cattle Population* | | | |
| Oxen ... ... | 14,739,000 | 9,557,000 | 24,296,000 |
| Buffaloes... ... | 577,000 | 5,023,000 | 5,600,000 |
| Sheep ... ... | 226,000 | 5,919,000 | 6,145,000 |
| Goats ... ... | 4,198,000 | 5,869,000 | 10,067,000 |
| Total ... | 19,740,000 | 26,368,000 | 46,108,000 |

*Source:* Live stock wealth of Pakistan.

| | | | | |
|---|---|---|---|---|
| *18. Seed Farms* ... | 36,630 (No. of villages) | 58,343 (No. of villages) | 94,973 | 1 seed farm per 10 villages. |

*19. Medicinal Herbs* — A lump sum provision of Rs. 1 million is recommended for a complete survey of medicinal herbs found in tribal areas and other parts of Pakistan, and for encouraging their commercial exploration.

| | | | | | | |
|---|---|---|---|---|---|---|
| *20. Anti Water-logging and Thur Measures.* | 2.35 million acres in Punjab alone need to be reclaimed from water-logging. Say, 300,000 acres, in Sind. | (*a*) Say 2.6 million acres total. (*b*) About 40,000 acres continue to be lost by water-logging annually. | 1 cusec of water required to reclaim 45 acres in three years. One tube well can pump 1 to 2 cusecs of water to keep down subsoil water at level which will prevent water-logging. | Current position (1949) only 35,000 acres are being reclaimed annually in West Pakistan | *Requirements* At least 15 |

| 1949 per capita consumption. | | International standard of consumption per cap ta. | 1957 requirement. | | | | | Increase in production required by 1957. | | | Increase in Production |
|---|---|---|---|---|---|---|---|---|---|---|---|
| East Pakistan. | West Pakistan. | | Unit per capita provided for. | Total. East Pakistan. | Total. West Pakistan. | Industrial. East Pakistan. | Industrial. West Pakistan. | Grand Total. | East Pakistan. | West Pakistan. | Total. | East Pakistan. |
| 4 | | 5 | 6 | | | | | | 7 | | | 8 |
| ... | ... | ... | *Roughages*<br>*East Pakistan*<br>15 lb. per day | 39.2 million tons | 60.0 million tons | – | = | 99·2 million tons | Availabilities in 1957 are expected to be:—<br>*Roughages*<br>1. Fodder crops (at 4 tons per acre) ... .. 32 million tons<br>2. Bhoosa from cereal crops (at double the weight of the grains). 30·8 million tons<br>3. Bhoosa from pulses ... ... 4·25 million tons<br>4. Residue from sugar cane 11·1 million tons<br>Total ... ... ... 78·15 million tons | | | |
| | | | *West Pakistan*<br>20 lb. per day | | | | | | | | | |
| | | | *Concentrates*<br>1 lb. per day | 2.6 million tons | 3.0 million tons | = | = | 5.6 million tons | The above exclude production of straw grass and pastures.<br>*Concentrates*<br>1. Pulses ... ... ... 841,100 tons<br>2. Cotton seead cake .. ... ... 500,000 tons<br>3. Other oil ckes ... ... ... 700,000 tons<br>2,041,100 tons | | | |
| | | | | Sole leather 22·5 million lb. Upper leather 19·5 million sq. ft. | | Total 30 million lb. = 20 million sq. ft. } 30,000 tons<br>This includes requirement of cottage scale manufacturers of superior varieties of shoes. | | | Nil. Quality only to be improved | | | |
| | | | *No. of seed farms*<br>1 seed farm per 10 villages. | 3,600 | 5,800 | .. | ... | 9,400<br>This has been recommended by I.C.A.R. Food and Agricultre Development Plan. | | | | *No. of seeds farms*<br>360<br>Or one seed farm for every 100 villages, c |

mended for a complete survey of medicinal herbs found in for encouraging their commercial exploration.

Current position (1940) only 35,000 acres are being reclaimed annually in West Pakistan

*Requirements (1957)*
At least 150,000 acres should be reclaimed annually in West Punjab, *i.e.* 800,000 acres by 1957.

*Land expected to be reclaimed by 1957*
*West Punjab*
600,000 acres
(not yet covered by any scheme)
plus 150,000 acres by current schemes.
Total ... 750,000 acres

*Approved schemes will recla*
West Pakistan 450,000 acres. Lump
Rs. 124 million is made to continue t
period of the programmes (1951–57).

| Increase in production required by 1957. | | | Increase in Production by 1957 aimed at. | | | Method proposed for increasing production. | Overall surplus/deficit by 1957. | Value of total increase in production by 1957. | Value of exports/imports in 1957. |
|---|---|---|---|---|---|---|---|---|---|
| East Pakistan. | West Pakistan. | Total. | East Pakistan. | West Pakistan. | Total. | | | | |
| 7 | | | 8 | | | 9 | 10 | 11 | 12 |

Availabilities in 1957 are expected to be:—

*Roughages*

| | | |
|---|---|---|
| 1. Fodder crops (at 4 tons per acre) ... .. | 32 | million tons |
| 2. Bhoosa from cereal crops (at double the weight of the grains). | 30·8 | million tons |
| 3. Bhoosa from pulses ... ... | 4·25 | million tons |
| 4. Residue from sugar cane | 11·1 | million tons |
| Total ... ... ... | 78·15 | million tons |

The above exclude production of straw grass and pastures.

*Concentrates*

| | |
|---|---|
| 1. Pulses ... ... ... | 841,100 tons |
| 2. Cotton seead cake .. ... ... | 500,000 tons |
| 3. Other oil ckes ... ... ... | 700,000 tons |
| | 2,041,100 tons |

*Deficit*

*Roughages*

21 million tons

*Concentrates*

36 million tons

Rs. 1,420 million at Re. 1/-per maund of roughages.

Nil. Quality only to be improved

2.3 million pieces of all hides and skins, or about 1,000 tons.

This increase is anticipated on account of increase in live-stock population.

Scheme already approved for Punjab, Sind and N. W. F. P. will effect improvement in flaying of animals and in the curing of hides and skins, and prevent damage to them. All this will improve the quality and consequently value of hides and skins by about 10 per cent.

Value increase in production of hides and skin estimated at Rs. 10 milllion (for 2·3 million hides and skins)—

at (i) Cow and buffalo hides. Rs. 28 per lb.

(ii) Goatskin, etc. Rs. 270 for 100 pieces.

About 20 per cent. of requirements of special varieties of manufactured leather will be imported; but Pakistan will also be able to export manufactured leather in equal proportion. Besides, we will be able te export hides and skins at the present rate, namely 14,117 tons, value of which is estimated at Rs. 30 million.

*No. of seeds farms*

360 580 940

Or one seed farm for every 100 villages, or every one tehsil.

Total provision required in the plan for these farms is Rs. 100 million.

Capital cost at Rs. 100,000 per farm = 94 million.

Reecurring for one year Rs. 4.7 million.

Total Rs. 98·7 million, say, Rs 100 million.

No recurring expenditure after one year of start. Farms should be self-supporting

*Land expected to be reclaimed by 1957*

*West Punjab*

600,000 acres

(not yet covered by any scheme) plus 150,000 acres by current schemes.

Total ... 750,000 acres

*Approved schemes will reclaim (1957)*

West Pakistan 450,000 acres. Lump sum provision of Rs. 124 million is made to continue this work during the period of the programmes (1951–57)

The area reclaimed should be able to produce additional 50,000 tons of cereals, etc, value of which is estimated £27 per ton and Rs. 13 million.

| Item. | Present Capacity. (June 1950.) | Capacity in June 1951. | Requirements in 1957. | Additional Capacity Required. | Capacity to Developed |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. *Textile Industry (Cotton)* | (i) Spindles:—<br>277,000 spindles<br>5,000 looms (power)<br>400,000 hand-looms<br><br>(ii) Production:—<br>90,000 bales (cloth)<br>19,000 bales (yarn)<br>109,000 bales | (i) Spindles:—<br>400,000 spindles<br><br>(ii) Production:—<br>200,000 bales<br>This production will considerably improve when the new mills get into full swing. | Cloth and Yarn:—<br>1,000,000 bales per annum at 17 yards per head per annum of which 25% will be produced by handloom industry. | 600,000 to 800,000 bales | 600,000 spindles |
| 2. *Textile Industry (Wool)* | Negligible | (i) 10,500 worsted spindles<br>(ii) 6,000 woollen spindles | The present requirements are expected to increase by 25% within the next 5 years and rise to 25,000 worsted spindles and 18,750 woollen spindles. | (i) 14,500 worsted spindles<br>(ii) 12,750 woollen spindles | (i) 20,000 worsted sp<br>(ii) 24,000 woollen sp<br>(iii) 10 finishing unit<br>(iv) 5 hosiery knitting<br>facturing woollen i<br>(5) 5 carpet manufac<br>for machine-made |
| 3. *Jute Industry* | Nil | One (I) jute mill:<br>(i) Loomage:<br>1,000 looms<br>(ii) Production:<br>21,620 tons<br>9,350 tons (bags)<br>12,620 tons (hessian) | 67,000 tons<br>(Present requirements 50,000 tons) | | 43,380 tons<br>Five (5) jute mills<br>(i) Loomage 5,000 l<br>(ii) Poduction: 109,8<br>*46, 750 tons<br>63,10 tons (he |
| 4. *Paper* | Nil | Nil | 30,000 tons of paper and pulp products. | 30,000 tons of paper and pulp products. | One paper mill in E<br>producing 30,000 to |
| 5. *Heavy Chemicals*<br>(Fertilizers, sulphuric acid, caustic soda and soda ash, soap and glycerine). | 330 tons (sulphuric acid)<br>20,000 tons (soda ash)<br>50,000 tons (washing soap)<br>300 tons (toilet soap) | 12,330 tons (sulphuric acid)<br>3,000 tons (caustic soda)<br>20,000 tons (soda ash)<br>52,300 tons (toilet soap)<br>250 tons (glycerine)<br>50,000 tons (washing soap) | 15,330 tons (sulphuric acid)<br>20,000 tons (caustic soda)<br>50,000 tons (soda ash)<br>80,000 tons (ammonium sulphate)<br>55,000 tons (washing soap)<br>5,000 tons (toilet soap) | 3,000 tons (sulphuric acid)<br>17,000 tons (caustic soda)<br>30,000 tons (soda ash)<br>80,000 tons (ammonium sulphate)<br>5,000 tons (washing soap) | Worth Rs. 65,000,000 |
| 6. *Miscellaneous*<br>(Leather, vegetable oil, glass and ceramics, sugar, etc.) | 10,750,000 pairs (leather shoes)<br>3,500,000 lb. (sole leather)<br>3,700,000 sq. ft. (upper leather)<br>80,000 (oils)<br>13,200 tons (glassware)<br>8,000 tons (fire bricks)<br>103,000 tons (sugar)* | 10,750,000 pairs (leather shoes)<br>3,500,000 lb. (sole leather)<br>3,700,000 sq. ft. (upper leather)<br>142,000 tons (oils)<br>14,200 tons (glassware)<br>8,000 tons (fire bricks)<br>107,000 tons (sugar) | 27,500,000 pairs (leather shoes)<br>31,659,757 lb. (sole leather)<br>27,438,546 sq. ft. (upper leather)<br>300,000 tons (oils)<br>30,000 tons (glassware)<br>10 000,000 sq ft. (sheet glass)<br>40,000 tons (fire bricks)<br>200,000 tons (sugar)† | 16,750,000 pairs (leather shoes)<br>28,159,757 lb. (sole leather)<br>23,738,456 sq. ft. (upper leather)<br>158,000 tons (oil)<br>15,800 tons (glassware)<br>10,000,000 sq. ft. (sheet glass)<br>32,000 tons (fire bricks)<br>93,000 tons (sugar) | Worth Rs 25,000,000 |

*42,000 tons, East Pakistan;
61,000 tons, West Pakistan.

†100,000 tons, East Pakistan.
200,000 tons, West Pakistan.

# INDUSTRY

| | Additional Capacity Required. | Capacity to be Developed. | Total Internal Production Planned. | Capital cost of Industry to be Developed. | Cost of Machinery to be imported. | Government Expenditure, if any. | Requirements to be met by imports. | Foreign Savings |
|---|---|---|---|---|---|---|---|---|
| | 5 | 6 | 7 | 8 | 9 | 10 | 11 | |
| nnum at<br>r annum<br>produced | 600,000 to 800,000 bales | 600,000 spindles | (i) Spindles:<br>1,000,000 spindles, 75% covered by loans.<br>(ii) Production.<br>454,000 bales (2 shifts)*<br>680,000 bales (3 shifts)<br>*Of yarn and cloth<br>But when the new mills are in full swing the production should be 900,000 bales of cloth, including 225,000 bales produced by handlooms. This capacity should consume 7 8 lac bales of cotton p.a. Value. Rs. 600,000,000. This plan will suffice for 17 yards per head p.a. for total population in 1957 as against pressnt consumption of 9 yards per head p.a. | Rs. 210,000,000 | Rs. 120,000,000 (soft) | | 100,000 bales of cloth valued at Rs. 150 million. | Producton of cott facture<br>195<br>(in million R<br>Cotton<br>Export +24<br>Cloth<br>Import —15<br>+9<br>Net gain Rs.<br>accounted for |
| ents are<br>by 25%<br>years and<br>spindles<br>pindles. | (i) 14,500 worsted spindles<br>(ii) 12,750 woollen spindles | (i) 20,000 worsted spindles<br>(ii) 24,000 woollen spindles<br>(iii) 10 finishing unit<br>(iv) 5 hosiery knitting mills manufacturing woollen items only.<br>(5) 5 carpet manufacturing mills for machine-made carpets. | (i) 30,500 worsted spindles<br>(ii) 30,000 woollen spindles<br>(iii) 10 finishing units<br>(iv) 5 hosiery knitting mills manufacturing woollen items only.<br>(v) 5 carpet manufacturing mills for machine-made carpets. | (i) Rs. 12,000,000<br>(ii) Rs 14,400,000<br>(iii) }<br>(iv) } Rs. 3,600,000<br>(v) }<br>Total.<br>say Rs. 30,000,000 | (i) Rs. 6,000,000 (soft)<br>(ii) Rs. 7,200,000 (soft)<br>(iii) }<br>(iv) } Rs. 3,800,000<br>(v) }<br>Total:<br>say Rs. 17,000,000 | | Imports will eventually be restricted to only very spceial items in worsted and woollens. Our woollen mills' production will give us an exportable surplus, particulary in carpets, blankets and tweeds. | Rs. 60,000,000<br>(Present impo<br>but already<br>agriculture |
| 0,000 tons) | | 43,380 tons<br>Five (5) jute mills<br>(i) Loomage 5,000 looms<br>(ii) Poduction: 109,850 tons*<br>*46, 750 tons (bage)<br>63,10 tons (hessian) | (i) Looms. 6,000<br>(ii) Production. 130,000 tons<br>56,100 tons (bags)<br>75,720 tons (hessian) | Rs. 110,000,000 | Rs. 72,000,000 | Rs. 2,125,000 (approx.) | Nil | Rs. 125,000,00<br>accounted<br>plan. |
| and pulp | 30,000 tons of paper and pulp products. | One paper mill in East Pakistan producing 30,000 tons p. a. | 30,000 tons, value Rs. 33,000,000 | Rs. 40,000,000 | Rs. 20,600,000 (soft)<br>Rs. 10,608,000 (hard)<br>Total. Rs. 31,208,000 | Rs. 40,000,000 | Cardboard newsprint requirements will be met by imports. | Rs. 30,000,00 |
| acid)<br>da)<br>sulphate)<br>oap)<br>) | 3,000 tons (sulphuric acid)<br>17,000 tons (caustic soda)<br>30,000 tons (soda ash)<br>80,000 tons (ammonium sulphate)<br>5,000 tons (washing soap) | Worth Rs. 65,000,000 (total) | Plans for a fertilizer factory to produce 80,000 tons p.a. under preparation. Other items are left to private enterprise. | Rs. 65,000,000 | Rs. 25,000,000 | Rs. 40,000,000 | | |
| er shoes)<br>ther)<br>er leather)<br>ware)<br>t glass)<br>ricks)<br>r)† | 16,750,000 pairs (leather shoes)<br>28,159,757 lb. (sole leather)<br>23,738,456 sq. ft. (upper leather)<br>158,000 tons (oil)<br>15,800 tons (glassware)<br>10,000,000 sq. ft. (sheet glass)<br>32,000 tons (fire bricks)<br>93,000 tons (sugar) | Worth Rs 25,000,000 (total) | All these industries will be left to private enterprise. | Rs. 25,000,000 | Rs. 8,000,000 | Nil | | Saving on imp<br>Rs. 56 mill<br>on account<br>ted for und |

# INDUSTRY

| Capacity to be Developed. | Total Internal Production Planned. | Capital cost of Industry to be Developed. | Cost of Machinery to be imported. | Government Expenditure, if any. | Requirements to be met by imports. | Foreign Exchange Savings/Earnings. |
|---|---|---|---|---|---|---|
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 600,000 spindles | (i) Spindles:<br>1,000,000 spindles, 75% covered by loans.<br>(ii) Production.<br>454,000 bales (2 shifts)*<br>680,000 bales (3 shifts)<br>*Of yarn and cloth<br>But when the new mills are in full swing the production should be 900,000 bales of cloth, including 225,000 bales produced by handlooms. This capacity should consume 7·8 lac bales of cotton p.a. Value. Rs. 600,000,000. This plan will suffice for 17 yards per head p.a. for total population in 1957 as against pressnt consumption of 9 yards per head p.a. | Rs. 210,000,000 | Rs. 120,000,000 (soft) | | 100,000 bales of cloth valued at Rs. 150 million. | Producton of cotton and cloth manufacture<br>1957 (in million Rs) / Present (in million Rs.)<br>Cotton Export +240 / +355<br>Cloth Import —150 / —415<br>+90 / —60<br>Net gain Rs. 150 million. Already accounted for in agriculture plan. |
| (i) 20,000 worsted spindles<br>(ii) 24,000 woollen spindles<br>(iii) 10 finishing unit<br>(iv) 5 hosiery knitting mills manufacturing woollen items only.<br>(5) 5 carpet manufacturing mills for machine-made carpets. | (i) 30,500 worsted spindles<br>(ii) 30,000 woollen spindles<br>(iii) 10 finishing units<br>(iv) 5 hosiery knitting mills manufacturing woollen items only.<br>(v) 5 carpet manufacturing mills for machine-made carpets. | (i) Rs. 12,000,000<br>(ii) Rs 14,400,000<br>(iii) (iv) (v) Rs. 3,600,000<br>Total.<br>say Rs. 30,000,000 | (i) Rs. 6,000,000 (soft)<br>(ii) Rs. 7,200,000 (soft)<br>(iii) (iv) (v) Rs. 3,800,000<br>Total.<br>say Rs. 17,000,000 | | Imports will eventually be restricted to only very spceial items in worsted and woollens. Our woollen mills' production will give us an exportable surplus, particulary in carpets, blankets and tweeds. | Rs. 60,000,000—net gain. (Present imports = Rs.20 millions) but already accounted for in agriculture plan. |
| 43,380 tons<br>Five (5) jute mills<br>(i) Loomage 5,000 looms<br>(ii) Poduction: 109,850 tons*<br>*46, 750 tons (bage)<br>63,10 tons (hessian) | (i) Looms. 6,000<br>(ii) Production: 130,000 tons<br>56,100 tons (bags)<br>75,720 tons (hessian) | Rs. 110,000,000 | Rs. 72,000,000 | Rs. 2,125,000 (approx.) | Nil | Rs. 125,000,000 (exports). Already accounted for in the agriculture plan. |
| nd pulp) One paper mill in East Pakistan producing 30,000 tons p. a. | 30,000 tons, value Rs. 33,000,000 | Rs. 40,000,000 | Rs. 20,600,000 (soft)<br>Rs. 10,608,000 (hard)<br>Total. Rs. 31,208,000 | Rs. 40,000,000 | Cardboard newsprint requirements will be met by imports. | Rs. 30,000,000 (saving on imports) |
| d) Worth Rs. 65,000,000 (total)<br>lphate)<br>) | Plans for a fertilizer factory to produce 80,000 tons p.a. under preparation. Other items are left to private enterprise. | Rs. 65,000,000 | Rs. 25,000,000 | Rs. 40,000,000 | | |
| shoes) Worth Rs 25,000,000 (total)<br>r)<br>eather)<br>e)<br>lass)<br>s) | All these industries will be left to private enterprise. | Rs. 25,000,000 | Rs. 8,000,000 | Nil | | Saving on imports of sugar will be Rs. 56 millions and Rs. 40 millions on account of leather; both accounted for under agriculture plan. |

1949 position.

| Track. | | | | Locomtives. | | | | Rolling Stock. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gauge. | Mileage. East Pakistan. | Mileage. West Pakistan. | Present condition. | Gauge and type, 1951-52. | Number. East Pakistan. | Number. West Pakistan | Present condition. | Type, 1951-1953. | Number. East Pakistan. | Number. West Pakistan. | Present condition. |
| | | | | *Locomotives* | | | | *I.—Coaching Stock* | | | |
| B.G. (5 ft. 6 in.) ... | 498·5 | 4,561·6 | At the normal rate of replacement of 700,000 sleepers per annum. About 3 milion sleepers are already over-due for replace-ment. | B.G. | 156 | 732 | *474 are due for replace ment by Junuary 1953. | B.G. bogies ... | X | 1,446 | †511 due for replacement by M |
| | | | | | | | | B.G. bogies, 4-wheelers. | X | 905 | †248 due for replacement by M |
| | | | | | | | | B.G. vehicles ... | 496 | X | †130 due for replacement by M |
| M.G. (3 ft. 3⅜ in.) ... | 1,101·7 | 318·7 | | M.G. | 274 | 25 | *140 due for replace ment by January 1953. | M.G. bogies ... | X | 81 | †5 due for replacement by 195 |
| | | | | | | | | M.G. 4-wheelers | X | X | |
| | | | | | | | | M.G. vehicles ... | 997 | X | 460 due for replacement by 195 |
| N.G. (2 ft. 6 in.) ... | 19·5 | 481·8 | | N.G. | 4 | 53 | | N.G. 4-wheelers | 21 | 208 | |
| Total ... | 1,619·7 | 5,362·1 | | | | | | | 1,514 | 2,640 | |
| Grand Total ... | 6,981·8 miles. | | | | | | | | | | |

*On the whole 53% of N W.R. B G. locomotives and 44% of E.B.R. M.G. locomotives are over age and overdue for replacement.

†On the whole 35% of N.W.R. carriages and 46% of E.B.R., M.G. carriages a

| | | | | | | |
|---|---|---|---|---|---|---|
| | *Boilers* | | | *II.—Wagons :—* (Service goods) | | | |
| B.G. | 156 | 795 | 537 due for re-placement by 1953. | B.G. ... ... | 5,397 | 22,584 | 8,702 are due for replacement 1953. |
| M.G. | 274 | 25 | 95 due for re-placement by 1953. | M.G... ... | 8,364 | 696 | 3,388 are due for replacement 1953. |
| | | | | N.G. ... ... | 9 | 587 | |
| | 864 | 1,630 | | | 13,770 | 23,867 | |

*Comparison of railway mileage with other countries :—*

| Country | Total mileage. | Miles of lines per 100 sq. miles of area of country. | Inhabitants per mile of line. |
|---|---|---|---|
| U.S.A. ... ... ... ... | 238,829 | 6·9 | 573 |
| United Kingdom ... ... | 20,080 | 22·5 | 2,233 |
| Belgium ... ... ... | 6,470 | 54·9 | 1,250 |
| France ... ... ... ... | 26,427 | 12·4 | 1,585 |
| Italy ... ... ... ... | 14,220 | 11·8 | 3,023 |
| India (Undivided) ... ... | 43,128 | 2·3 | 8,181 |
| Pakistan ... ... ... | 6,982 | 1·9 | 11,863 |

*III.—Tank Wagons and other Special Wagons*
Total B.G. 516.

# TRANSPORT AND COMMUNICATIONS

## *Railways*

| Rolling Stock. | | | | Miscellaneous | | | Targets for Development by 1957. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number. | | Present condition | | | | Track | | Locomotives. | | | |
| 53. | East Pakistan. | West Pakistan | | Item. | East Pakistan | West Pakistan | Item. | Quantity | Cost. | Type. | Number to be purchased | Cost | Type. |
| k | | | | | | | | | | | | | |
| ... | X | 1,446 | †511 due for replacement by March 1953. | *Workshops* | The workshops owned by E.B.R. are required to maintain loco or rolling stock to the following extent :— Locos .. 430 Carriages 1,493 Wagons ... 13,761 But the present monthly capacity of these workshops is as under :— Loco P.O.H. 7 M.G. Carriages 14 units. Wagons 350 units | Full facilities available | *I.—Sleeper replacements* | B.G. 2,250,000 | Rs. 41·70 million at Rs. 23/- each. | *Diesel, electric locomotives* | | | *Light weight; steel* |
| | X | 965 | †248 due for replacement by March 1953. | | | | | M.G. 750,000 | 6·00 million at Rs. 8/- each. | B.G. ... | 43 | Rs.34·4 million | B.G. |
| ... | 496 | X | †130 due for replacement by March 1953. | | | | | Total 3,000,000 | | M.G. ... | 39 | Rs.23·4 million | M.G. |
| | | | | | | | | | | | | | Total |
| | | | | | | | | | | | | | *Wagons (General Service)* |
| | | | | | | | | | | *Boilers* | | | |
| ... | X | 81 | †5 due for replacement by 1953. | | | | | | | B.G. ... | 38 | Rs.3·8 million | B.G |
| lers | X | X | | | | | | | | M.G. ... | 50 | Rs.3·75 million | M.G. |
| ... | 997 | X | 460 due for replacement by 1953. | | | | | | | | | | |
| | | | | | | | | | | | Total 170 | Rs.65·35 million | |
| lers | 21 | 208 | | | | | *II.—New constructions and conversion of M. lines.* | | Rs. 25·00 million | | | | |
| | 1,514 | 2,640 | | | | | | | | Total ... | Rs. 72·70 million | | |

% of N.W.R. carriages and 46% of E.B.R., M.G. carriages are over age.

| ds) | | | |
|---|---|---|---|
| ... | 5,397 | 22,584 | 8,702 are due for replacement by March 1953. |
| ... | 8,364 | 696 | 3,388 are due for replacement by March, 1953. |
| ... | 9 | 587 | |
| | 13,770 | 23,867 | |

*ns and other Special Wagons*
G. 516.

## TIONS

### Targets for Development by 1957.

| Track. | | | Locomotives. | | | Rolling Stock. | | | Miscellaneous. | | Financial Position. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| em. | Quantity. | Cost. | Type. | Number to be purchased | Cost | Type. | Number to be purchased | Cost. | Item. | Cost. Rs. | |
| *replacements* | B.G. 2,250,000 | Rs. 41·70 million at Rs. 23/- each. | *Diesel, electric locomotives* | | | *Light weight, all steel* | | | (1) *Workshops* | | *Position in* 1948—49 |
| | M.G. 750,000 | 6·00 million at Rs. 8/- each. | B.G. ... | 43 | Rs.34·4 million | B.G. ... | 180 | 17 million | (*a*) Rehabilitation of Pahiatal Workshop (E.B.R.). | 10 million | Revenue Receipts ... Rs. 391,655,000 |
| | Total 3,000,000 | | M.G. ... | 39 | Rs.23·4 million | M.G. ... | 130 | 13 million | (*b*) Development of Saidpur Workshops E.B.R.). | | Revenue Expenditure.. Rs. 312,907,000 |
| | | | | | | Total ... | 310 | | | | Surplus ... ... Rs. 78,748,000 |
| | | | *Boilers* | | | *Wagons (General Service)* | | | (2) *Miscellaneous* (Steel for P.W. and bogies, electrical equipment, etc.) | 4·3 million | (Rs. 40,277,000 provided on account of capital expenditure.) |
| | | | B.G. ... | 38 | Rs.3·8 million | B.G ... | 700 | 7 million | | | |
| | | | M.G. ... | 50 | Rs.3·75 million | M.G. ... | 1,250 | 11·2 million | | | *Position in* 1949—50 |
| | | Total 170 | | | Rs.65·35 million | Total 1,950 | | Rs. 48·2 million | Total ... | 14·3 million | Revenue Receipts ... Rs. 369,559,000 |
| | | | | | | | | | | | Revenue Expenditure.. Rs. 316,393,000 |
| *onstructions* | | Rs. 25·00 million | | | | | | | | | Surplus ... ... Rs. 53,166,000 |
| *onversion of nes.* | | | | | | | | | | | (Rs. 8,127,000 provided on account of capital expenditure.) |
| Total | | ... Rs. 72·70 million | | | | | | | | | *Position in* 1950—51 (Budget Estimates) |
| | | | | | | | | | | | Revenue Receipts Rs. 73,308,000 |
| | | | | | | | | | | | Revenue Expenditure.. Rs. 333,308,000 |
| | | | | | | | | | | | Surplus ... Rs. 40,000,000 |
| | | | | | | | | | | | (Rs. 70,000,000 provided on account of capital expenditure.) |

*Total Cost of Development Planned*

Rs. 72·70 million
Rs. 65·35 million
Rs. 48·20 million
Rs. 14·30 million

Rs. 200·55 million

Say Rs. 20 crores.

*Position in* 1957

It is planned to convert the present system to diesel-electric traction. This is expected to effect considerable economy in the running expenses. The expected development of industrial and commercial activities in the country is bound to raise considerably the earnings of Pakistan railways. It is therefore anticipated that, on the whole, Pakistan railways will be able to raise their present surplus by 1957, by a fairly wide margin, which, is, however, difficult to anticipate at this stage.

## TRANSPORT AND COMMUNICATIONS.

### B.—ROADS.

| Province. | Present mileage. | | | | | Target by 1957 and cost of work involved. | | | | Material required. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | New mileage. | | Rehabilitation of old. | | | | |
| | National Highways. | Modern surface. | Unmetalled roads. | Water-bound Macadam. | Total. | Total. | Cost. Rs. | Total mileage. | Cost. Rs. | Cement. Tons. | Road rollers. | Coal Tons. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| Punjab .. .. .. .. | 1,389 | 2,094 | 12,883 | 410 | 17,376 | 1,600 | 36,600,000 (up to 1953-54) | — | — | 80,000 (for 5 years) | 35 | — |
| N. W. F. P. .. .. .. | 893 | 1,103 | 1,899 | 120 | 4,015 | — | — | — | — | 103,866 (for 10 years) | 21 | 58 |
| Sind .. .. .. .. | 593 | 597 | 11,648 | 160 | 12,998 | 6,700 | 62,500,000 (up to 1957) | — | 1,500,000 | 173,430 (for 10 years) | — | 32,87 |
| Baluchistan .. .. .. | 1,427 | 586 | 3,453 | 637 | 6,103 | 170 | 2,542,600 (up to 1950) | — | — | 2,520 (for 5 years). | 28 | 15,00 |
| States .. .. .. .. | — | — | — | — | — | — | — | — | — | — | — | — |
| East Bengal .. .. .. | 573 | 594 | 20,172 | 1,028 | 22,367 | 728 | 60,000,000 (up to 1955). | — | — | — | 54 (for 5 years). | — |
| Total .. .. .. | 4,875 | 5,576 | 50,055 | 2,355 | 63,259 | 9,198 | 161,642,600 | — | 1,500,000 | 359,8[illegible]6 | 136 | |

It is, however, anticipated that the Provincial Governments will not be able to execute their Road plans in accordance with their targets. Therefore the provision under this Head has b
only. Foreign exchange required will be about Rs. 1 million only.

## TRANSPORT AND COMMUNICATIONS.

### B.—ROADS.

| Province. | Present mileage. | | | | | Target by 1957 and cost of work involved. | | | | Material required. | | | Cost of material. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | New mileage. | | Rehabilitation of old. | | | | | |
| | National Highways. | Modern surface. | Unmetalled roads. | Water-bound Macadam. | Total. | Total. | Cost Rs. | Total mileage. | Cost Rs. | Chips. Tons. | Road rollers. | Coal tar. Tons. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| .. .. .. .. | 1,389 | 2,694 | 12,883 | 410 | 17,376 | 1,600 | 36,000,000 (up to 1953-54) | — | — | 80,000 (for 5 years) | 35 | — | Rs. 2,142,067 |
| .. .. .. .. | 893 | 1,103 | 1,899 | 120 | 4,015 | — | — | — | — | 103,866 (for 10 years) | 21 | 581 | |
| .. .. .. .. | 593 | 597 | 11,648 | 160 | 12,998 | 6,700 | 62,500,000 (up to 1957) | — | 1,500,000 | 173,430 (for 10 years) | — | 32,870 | |
| .. .. .. .. | 1,427 | 586 | 3,453 | 637 | 6,103 | 170 | 2,542,000 (up to 1955) | — | — | 2,520 (for 5 years). | 28 | 15,000 | |
| .. .. .. .. | — | — | — | — | — | — | — | — | — | — | — | — | |
| .. .. .. | 573 | 594 | 20,172 | 1,028 | 22,367 | 728 | 60,000,000 (up to 1955). | — | — | — | 54 (for 5 years). | — | |
| .. .. .. | 4,875 | 5,576 | 50,055 | 2,355 | 63,259 | 9,198 | 161,042,000 | — | 1,500,000 | 359,816 | 136 | 48,651 | Rs. 2,142,067 |

however, anticipated that the Provincial Governments will not be able to execute their Road plans in accordance with their targets. Therefore the provision under this Head has been limited to Rs. 100 million
Foreign exchange required will be about Rs. 1 million only.

TRANSPORT AND COMMUNICATIONS.

C. TELECOMMUNICATIONS.

| Item. | Present Position. | | | Position to be attained by 1957. | | | | | Additional Required. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Quality. | Total No. available. | Density per 100 population. | Quality. | No. | Foreign exchange component of development planned. | Rupee component of development planned. | Foreign exchange component of replacement planned. | Rupee component of replacement planned. | Item. | Cost. |
| 1. Telephone .. | Manual .. .. | 5,510 | 0·02 | Manual .. .. | 12,500 | | | | | | |
| | Automatic .. | 8,860 | | Automatic .. .. | 35,100 | | | | | | |
| | Private branch exchange. | 3,256 | | | | | | | | | |
| 2. Telephone Exchanges. | Manual .. .. | 84 | | Manual .. .. | 110 | | | | | Automatic exchange, equipment. | |
| | Automatic .. | 27 | | Automatic .. | 113 | | | | | Tel printers. | |
| | Private branch exchange. | 181 | | | | | | | | Carrier equipment .. | 38,700,000 |
| 3. Telephone trunk circuits. | Internal .. .. | 391 | | Telephone .. .. Trunk circuits .. | .. | Rs. 3,135,020 | 14,211,000 | 16,537,000 | 2,326,000 | Voice frequency equipment. | |
| | | | | | | | | | | Wirephoto equipment. | |
| 4. Telegraph services | Circuits .. .. | 475 | | Telegraph circuits .. | .. | | | | | | |
| | Offices .. .. | 2,638 | | Telegraph offices .. | 2,838 | | | | | | |
| 5. Telegraph equipments | Teleprinters .. | 60 | | Teleprinters .. .. | 160 | | | | | | |
| | | | | Voice frequency .. | 8 | | | | | | |
| 6. Internal wireless telegraphs. | Manually operated .. | 4 | | Manually operated telegraphs. | 15 | | | | | Wireless transmitters. | |
| | High speed .. | 1 | | High speed .. .. | 4 | | | | | Wireless receivers, and aerial equipment. | 4,015,000 |
| 7. Internal wireless telephones. | — | 1 | | — | 3 | | | | | | |
| 8. Overseas telephone service. | — | 4 | | — | 6 | Rs. 8,747,900 | 2,864,000 | 4,055,000 | 191,000 | | |
| 9. Overseas service telegraph | High speed Telegrpahs .. | 3 3 | | High speed .. .. Telegraphs .. .. | 3 7 | | | | | | |
| 10. Manufacture of :— | | | | | | | | | | | |
| (i) Line stores.. | | | | Telegraph and telephone overhead line stores | 250 miles line materials with insulators. | 602,000 | 1,469,000 | 1,686,000 | 217,000 | Plate shearing, riveting, turning and precision machinery. | 120,000 |
| (ii) Telephone equipment. | | | | Machines for Printing equipment, manufacture of manual exchange equipment and automatic telephone instrument parts. | 2,000 Manual equipment 1,000 Telephone, 5,000 Instruments with cords and inset transmitters. | 2,500,000 | 1,072,000 | 1,346,000 | 274,000 | Material required annually :— Pig iron, steel, iron bars, rivets, steel sheets, coke. | 921,000 |
| | | | | | | | | | | Lathes, drilling machine, jig boring machine, power guillotine, power press, heat treatment equipment. Machinery for buffing, tinning, and enamelling and raw material. | 1,591,800 |
| | | | | Total .. .. | | 91,964,000 | 19,616,000 | 23,624,000 | 4,008,000 | Total .. .. | Rs. 45,347,800 |
| | | | | | | say Rs. 90 millions. | | | | | |

# TRANSPORT AND COMMUNICATIONS

## D. PORTS.

| Name of Port. | PRESENT POSITION. Handling Capacity. | Traffic Offered | Income | 1957 POSITION PLANNED. Traffic Expected | Handling Capacity Planned. | Name of Work Proposed. | Cost. | Income Expected. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | | | | 3 | | | | 4 |
| | | (1949) | | | | | | | |
| Chittagong | I.—1947. 600,000 tons. Jetty frontage of 2,300 ft. of 4 berths or 4 ships in all.<br><br>II.—*July*, 1949 2,000,000 tons made by temporary mooring and floating and lighterage jetties. | *Imports.* 1,560,000 tons per annum.<br><br>*Exports.* 848,000 tons<br><br>*Total.* 2,408,000 + Coal about 960,000 = 3,368,000 tons total | 1948—49 Total Income. 4,308,991<br>3,145,160<br>Rs. 7,454,151<br><br>*Expenditure* 3,260,000<br>1,699,725<br>Rs 4,959,725<br><br>*Net Saving.* Rs. 2,494,426 | 3,600,000 tons per annum | 3,600,000 tons | Construction of :<br>1. 5 general cargo jetties of 500 ft each.<br>2. 2 New salt jetties 500 ft each.<br>3. 5 Transit sheds.<br>4. 7 Bonded warehouses.<br>5 39 New cranes<br>6. 2 Salt storage sheds.<br>8 Rehabilitation<br>7. 50 miles of railway track.<br>of existing jetties, etc. etc. | Rs. 144,805,000 out of which amount spent by March, 1950 is Rs. 13,840,000<br><br>Balance is Rs. 130,965,000 | *Total Income.* Rs. 18,219,011<br>Rs. 13,252,035<br>Rs. 31,471,045<br><br>*Expenditure* Rs 18,160,000<br>Rs. 3,201,012<br>Rs. 21,361,012<br><br>*Net Saving* Rs. 10,110,033 Deducting interest at 3·25 per cent on capital at charge net profit on capital invested will be 3·35 per cent. or Rs. 5,404,033 p. a. | The following material will be required for the execution of the scheme of expansion of Chittagong Port :—<br><br>*Material* — *Quantity*<br>1. Steel—screws, M. S. rounds, cafes and couplings, structural steel, M. S. sheet piling, screw piles, etc. — 39,410 tons<br>2. Cement ... ... — 55,000 tons (locally).<br>3. Bricks ... ... — 50,000,000.<br>4. Timber ... ... — 1,000 ton, (about 500 from abroad).<br>5. Permanent way material :<br>(*a*) F.F. rails of 60 lb. — 10,000 ft.<br>(*b*) Wooden sleepers — 200,000.<br>6. Crews ... ... — 39<br>7. Pre-fabricated sheds<br>Total cost of the material required is expected to be Rs. 58,811,500. |
| Karachi Dry Dock ... | Nil. | Expect. | | Dry Dock of the size 580 by 75 by 23·5 ft. in conjuction with a Naval Dry Dock of 420 by 50 by 16 the construction of which has already been sanctioned by Defence Ministry at an estimated cost of Rs. 60—70 lacs. | Expect 30 vessels to dry dock at Karachi in a year. This figure is 3·6 per cent. of vessels visiting Karachi in a year. Roughly speaking average number of vessels visiting Karachi in a year is 894. | | Rs. 10,200,000<br><br>*Grand Total.* Rs. 141,165,000 Say Rs. 14·0 million. | *Estimated Expenditure.* Rs. 656,000<br><br>*Estimated Receipts* Rs. 125,000 p.a.<br><br>*Net Estimated Deficit.* Rs. 531,000 p.a. | |

| Province. | Present installed capacity. | | |
|---|---|---|---|
| | Hydro. | Thermal. | Total. |
| | kW. | kW. | kW. |
| Sind .. .. | — | 22,210 | 22,210 |
| West Punjab .. | — | 34,340 | 34,340 |
| N.W.F.P. .. | 9,600 | 1,390 | 10,990 |
| Baluchistan .. | — | 2,100 | 2,100 |
| East Bengal . | — | 6,990 | 6,990 |
| Total | 9,600 | 67,030 | 76,630 |

Comparison of available power with other countries.

| | kW. |
|---|---|
| 1. Japan | 8,539,000 |
| 2. India | 1,302,000 |
| 3. China | 1,332,000 |
| 4. Indonesia | 350,000 |
| 5. Malaya | 120,000 |
| 6. Philippines | 108,000 |
| 7. Hong Kong | 72,000 |
| 8. Indo-China | 46,000 |
| 9. Burma | 30,000 |
| 10. Ceylon | 21,000 |
| 11. Siam | 16,000 |

Capacity in kW. per 1,000 of population.

| | |
|---|---|
| 1. Pakistan | 1.02 |
| 2. Japan | 10.9 |
| 3. India | 4.10 |
| 4. China | 2.88 |
| 5. Indonesia | 5.07 |
| 6. Philippines | 5.53 |
| 7. Hong Kong | 41.14 |
| 8. Indo-China | 1.70 |
| 9. Burma | 1.76 |
| 10. Ceylon | 3.04 |
| 11. Siam | 0.94 |
| 12. Malaya | 20.68 |

Proposed (1957) installed capacity.

| Project | Hydro | Thermal. | Total cost. | Cost of Machinery. |
|---|---|---|---|---|
| | kW. | kW. | Rs. | Rs. |
| Malakand power house | 19,000 | .. | 5,682,000 | 3,240,000 |
| Rasul | 22,000 | .. | 85,737,800 | 35,000,000 |
| Dargai | 15,000 | .. | 15,550,000 | 12,954,000 |
| Mianwali | 30,000 | .. | 69,000,000 | 12,500,000 |
| Warsak | 90,000 | .. | 143,000,000 | 18,900,000 |
| Karnafuli | 40,000 | .. | 50,000,000 | 20,000,000 |
| 1. Central generating stations at Hyderabad and Sind. | .. | 25,000 | 60,000,000 | 40,000,000 |
| 2. Provision of increased power to the Makerwal colliery area. | .. | 2,000 | 1,516,534 | 1,326,967 |
| 3. Rehabilitation of power station in the Punjab. | .. | 7,300 | 17,500,000 | 14,500,000 |
| 4. Diesel power station for Chittagong. | .. | 5,000 | 4,000,000 | 2,500,000 |
| 5. Electrification scheme of Pishin (Baluchistan). | .. | 1,000 | 1,030,843 | 963,800 |
| | 216,600 | 40,300 + present installed capacity, 67,030 | 453,017,177 | 161,884,767 |
| | Total | 107,330 | | |
| | Grand Total | 323,930 kW. | | |

This plan will increase the available power by 1957 to 3.95 kW. per thousand of population.

Material required (1957).

| Item. | Quantity. | Value. |
|---|---|---|
| | | Rs. |
| Oil | 178,649.32 tons | 21,437,900 |
| Coal | 152,129.5 tons | 8,367,122 |
| | Total value .. | 30,805,022 |

*Note.*—Out of the present installed capacity, 25,450 kW. are generated by diesel stations and 32,868 kW. by steam stations. Hence oil requirements (and value thereof) are calculated for 25,450 +40,300 or 65,750 kW. and coal requirements for 32,868 kW.

| Province. | Present installed capacity. | | |
|---|---|---|---|
| | Hydro. | Thermal. | Total. |
| | kW. | kW. | kW. |
| Sind .. .. | — | 22,210 | 22,210 |
| West Punjab .. | — | 34,340 | 34,340 |
| N.W.F.P. .. | 9,600 | 1,390 | 10,990 |
| Baluchistan .. | — | 2,100 | 2,100 |
| East Bengal .. | — | 6,990 | 6,990 |
| Total | 9,600 | 67,030 | 76,630 |

| Comparison of available power with other countries. |
|---|
| kW. |
| 1. Japan 8,539,000 |
| 2. India 1,362,000 |
| 3. China 1,332,000 |
| 4. Indonesia 350,000 |
| 5. Malaya 120,000 |
| 6. Philippines 108,000 |
| 7. Hong Kong 72,000 |
| 8. Indo-China 46,000 |
| 9. Burma 30,000 |
| 10. Ceylon 21,000 |
| 11. Siam 16,000 |
| Capacity in kW. per 1,000 of population. |
| 1. Pakistan 1.02 |
| 2. Japan 10.9 |
| 3. India 4.10 |
| 4. China 2.88 |
| 5. Indonesia 5.07 |
| 6. Philippines 5.53 |
| 7. Hong Kong 41.14 |
| 8. Indo-China 1.70 |
| 9. Burma 1.76 |
| 10. Ceylon 3.04 |
| 11. Siam 0.94 |
| 12. Malaya 20.68 |

| Proposed (1957) installed capacity. | | | Total cost. | Cost of Machinery. |
|---|---|---|---|---|
| Project | Hydro | Thermal. | | |
| | kW. | kW. | Rs. | Rs. |
| Malakand power house | 19,000 | .. | 5,682,000 | 3,240,000 |
| Rasul | 22,000 | .. | 85,737,800 | 35,000,000 |
| Dargai | 15,000 | .. | 15,550,000 | 12,954,000 |
| Mianwali | 30,000 | .. | 69,000,000 | 12,500,000 |
| Warsak | 90,000 | .. | 143,000,000 | 18,900,000 |
| Karnafuli | 40,000 | .. | 50,000,000 | 20,000,000 |
| 1. Central generating stations at Hyderabad and Sind. | .. | 25,000 | 60,000,000 | 40,000,000 |
| 2. Provision of increased power to the Makerwal colliery area. | .. | 2,000 | 1,516,533 | 1,326,967 |
| 3. Rehabilitation of power station in the Punjab. | .. | 7,300 | 17,500,000 | 14,500,000 |
| 4. Diesel power station for Chittagong. | .. | 5,000 | 4,000,000 | 2,500,000 |
| 5. Electrification scheme of Pishin (Baluchistan). | .. | 1,000 | 1,030,843 | 963,800 |
| | 216,600 | 40,300 + present installed capacity, 67,030 | 453,017,177 | 161,884,767 |
| Total | | 107,330 | | |
| Grand Total | | 323,930 kW. | | |

This plan will increase the available power by 1957 to 3.95 kW. per thousand of population.

| Material required (1957). | | |
|---|---|---|
| Item. | Quantity. | Value. |
| | | Rs. |
| Oil | 178,649.32 tons | 21,437,900 |
| Coal | 152,129.5 tons | 8,367,122 |
| | Total value .. | 30,805,022 |

*Note.*—Out of the present installed capacity, 25,450 kW. are generated by diesel stations and 32,868 kW. by steam stations. Hence oil requirements (and value thereof) are calculated for 25,450 +40,300 or 65,750 kW. and coal requirements for 32,868 kW.

| Item. | Locality and extent of known deposits. | | Present demand | Present (1949) production. | | Present imports/exports. | | Possibilities of in internal Pr |
|---|---|---|---|---|---|---|---|---|
| | Locality. | Extent of known deposits. | | Quantity. | Value (Rs.) (Pit value). | Quantity. | Value (Rs.) | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1. *Coal* ... ... ... | Baluchistan, Punjab and Sind. | 165,500,000 tons (Probable workable reserves estimated by Powell Duffryn.) | 1,680,000 tons (1950) | 324,027 tons (1950) | 1,939,055† | *Imports*— 1,152,705 tons (1950) | *Imports*—(*c*) 27,641,281 (1950) | 24·4% per year sive increase, i by 1957). |
| 2. *Minaral Oils* (*Petroleum*). | Punjab and East Bengal | 1,500,000 tons (*h*) | 941,000 tons | 134,600 tons (1950) (1 ton = 300 galls.) | 63,514,210† | 781,400 tons (1950) | 34,968,798 | 4·6% per year, by 1957. |
| 3. *Chormite* ... ... | Baluchistan. | | | 15,700 tons (1949) | 235 500† | | Total value of metals and ores imported (1949-50) 54,561,023 (*d*). | 5% per year, *i.e.* 1957. |
| 4. *Antimony* ... ... | Chitral, N.W.F.P. and Kalat State. | | | Nil in 1949 | Nil in 1949 | | | |
| 5. *Rock Salt* ... ... | Punjab and N.W.F.P. | (The area of salt-bearing strata is about 600 miles in which the salt zones very from 100 to 275 feet in thickness with enormous quantity of the mineral.) | | 160,436 tons | 1,363,706† | *Exports*— 71,786 tons to India plus 20,000 tons to Japan ——— 91,786 tons | | 5% per year, *i.e.* 1957. |
| 6. *Saltpetre* ... ... | | | | 29,300 tons* | 992,840* | | | 5% per year, *i.e.* 1957. |
| 7. *Gypsum* ... ... | Baluchistan and Punjab | 30,000,000 tons | | 15,645 tons (1949) | 95,825† | *Exports*— 1,000 tons (*i*) | | 5% per year *i.e.* 1957. |
| 8. *Sulphur* ... ... | Koh-i-Sultan (Baluchistan), Sauni (Kalat), and N.W.F.P. | (Proved deposits 50,000 tons.) | | | | | | 5% per year, *i.e.* 1957. |
| 9. *Glass sand* (*i.e.* Silica Sand. | Jangshahi, Jhelum and Hazara. | Reserves estimated at Jangshahi alone 315,000 tons. | | 16,000 tons (1949) | 80,000† | | | 5% per year, *i.e.* 1957. |
| 10. *Lime Stone* ... ... | Punjab and Sind. | | | 278,827 tons (1949) | | | | 5% per year, *i.e.* 1957. |
| 11. *Soap Stone* ... ... | N.W.F.P. | | | 590 tons* | 17,288* | | | 5% per year, *i.e.* 1957. |
| 12. *Fullors Earth* ... | Khairpur State. | | | 4,814 tons* | 78,160* | | | 5% per year, *i.e.* 1957. |
| 13. *Marble* ... ... | N.W.F.P. | | | 147 tons* | 5,000* | | | 5% per year, *i.e.* 1957. |
| 14. *Clay* ... ... ... | Punjab and Sind. | | | 27,421 tons* | 15,134* | | | 5% per year, *i.e.* 1957. |
| 15. *Soda Corbonate.* ... | Khairpur State. | | | | | | | 5% per year, *i.e.* 1957. |
| 16. *Iron Ore* ... ... | | | | Nil | | | | 5% per year, *i.e.* 1957. |
| 17. *Fire Clay* ... ... | Punjab. | | | 5,245 tons* | 175,479* | | | 5% per year, *i.e.* 1957. |
| | | Total | | 1,012,752 tons | Rs. 68,509,197 | *Total imports*— 1,934,105 tons *Total Exports*— 456,783 tons | *Total value of Imports*— Rs. 117,171,102 | |

18. *Miscellaneous.*—Other minerals found are Road Metal (Sind) 111 997 tons; Sand Stone (N.W.F.P.) 1,029 tons; Orpiment (Chitral) 36 tons; and miscellaneous (N.W.F.P.) 185,039 tons.

19. *Need for Geological Survey.*—Information about mineral reserves in the country is inadequate and cannot convey a complete picture of the country's mineral wealth. Large deposits of iron, copper lead of galena, ceru-site or lead carbonate and others, are expected. For the proper utilization of the country's mineral resources, a complete geological survey of Pakistan is of utmost urgeney. According to the estimate of the Economic Resources and Requirements Committee such a survey would cost about Rs. 10 million.

(*) Figures for 1948. (†) Calculated according to the pit value in 1948.
(*b*) Within five years from 1949. The long term production target (six to ten years) is 1,150,000 tons (vide Report prepared by Powell Duffryn Services Limited, September, 1949).
(*c*) No imports from India since January, 1950. These imports are from United Kingdom, Poland, France, South Africa and Belgium.
(*d*) Figures for separate items not available.
(*h*) Reserves at Attock only; extent of Chakwal reserves is not known as yet. No estimates of production and reserves can be given at present thought it is hoped that at Pathoria the yield would be 3,000 barrels daily and that Baluchistan will also yield some supply (1 barrel = 40 gallons.)
(*i*) Requirements of India rising to 4,000 tons per day under a programme to be mutually agreed upon which Pakistan was prepared to take up.

| Present imports/exports. | | Possibilities of increase in internal Production. | Cost of Development | Estimated production by 1957. | | Estimated increase in production by 1957. | | Estimated i |
|---|---|---|---|---|---|---|---|---|
| Quantity. | Value (Rs.) | | | Quantity | Value (Rs.) (Pit value) | Quantity | Value (Rs ) (Pit value) | Quantity. |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Imports*— 1,152,705 tons (1950) | *Imports*—(*c*) 27,041,281 (1950) | 24·4% per year (progressive increase, *i.e.* 157·7% by 1957). | It is estimated that the cost of increasing coal production in the country will be about Rs. 17 millions. A detailed scheme is being worked out. Development of other mines will be mainly by mechanization. Schemes are being worked out and it is presumed that the cost of mechanization of about 30 mines during the course of the period 1951-57 will be about Rs. 3 millions The total expenditure on development of coal and other mines will, therefore, be about Rs. 20 millions. | 835,000 tons (*b*) | 4,801,250† | 510,973 tons | 2,865,195 | 3,000,000 tons |
| 781,400 tons (1950) | 34,968,798 | 4·6% per year, *i.e.* 27·5% by 1957. | | 171,300 tons | 80,832,188 (at about 471/14/–per ton) | 36,700 tons | 17,317,978 | 1,470,200 tons |
| | Total value of metals and ores imported (1949-50) 54,561,023 (*d*). | 5% per year, *i.e.* 30% by 1957. | | 20,410 tons | 306,150 (at 15/–per ton) | 4,710 tons | 70,650 | Imports of metals will continue at of imports being Rs. 545 lacs. |
| *Exports*— 71,786 tons to India plus 20,000 tons to Japan | | 5% per year, *i.e.* 30% by 1957. | | 208,567 tons | 1,772,920 (at 8/8/–per ton) | 48,131 tons | 409,214 | |
| 91,786 tons | | 5% per year, *i.e.* 30% by 1957. | | 38,090 tons | 1,295,060† | 8,790 tons | 302,220 | |
| *Exports*— 1,000 tons (*i*) | | 5% per year *i.e.* 30% by 1957. | | 20,338 tons | 124,570† (at 6/2/–per ton) | 4,693 tons | 28,745 | |
| | | 5% per year, *i.e.* 30% by 1957. | | 20,800 tons | 104,000† (at 5/–per ton) | 4,800 tons | 24,000 | |
| | | 5% per year, *i.e.* 30% by 1957. | | 362,875 tons | | 84,048 tons | | |
| | | 5% per year, *i.e.* 30% by 1957. | | 767 tons | 22,484† (at 29/5/–per ton) | 177 tons | 5,196 | |
| | | 5% per year, *i.e.* 30% by 1957. | | 6,258 tons | 101,692† (at 16/4/–per ton) | 1,444 tons | 23,532 | |
| | | 5% per year, *i.e.* 30% by 1957. | | 191 tons | 6,494† (at 34/–per ton) | 44 tons | 1,494 | |
| | | 5% per year, *i.e.* 30% by 1957. | | 35,647 tons | 20,052† (at –/9/–per ton) | 8,226 tons | 4,918 | |
| | | 5% per year, *i.e.* 30% by 1957. | | | | | | |
| | | 5% per year, *i.e.* 30% by 1957. | | 6,818 tons | 238,635 (at 35/–per ton) | 1,573 tons | 63,151 | |
| *Total imports*— 1,934,105 tons *Total Exports*— 456,783 tons | *Total value of Imports*— Rs. 117,171,102 | | | Total 1,727,061 tons | Rs. 89,625,490 | Total 714,309 tons | Rs. 21,116,293 | 4,470,200 tons |

Grand Total of Development ... Rs. 30 millions

[Estimate of foreign exchange requirements on account of cost of machinery Rs. 18 millions.]

rvices Limited, September, 1949.

ught it is hoped that at Pathoria the yield would be 3,000 barrels

| | Posibilities of increase in internal Production. | Cost of Development | Estimated production by 1957. | | Estimated increase in production by 1957. | | Estimated imports by 1957. | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Quantity | Value (Rs) (Pit value) | Quantity | Value (Rs) (Pit value) | Quantity. | Value. | Currency. |
| | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| | 24·4% per year (progressive increase, *i.e.* 157·7% by 1957). | It is estimated that the cost of increasing coal production in the country will be about Rs. 17 millions. A detailed scheme is being worked out. Development of other mines will be mainly by mechanization. Schemes are being worked out and it is presumed that the cost of mechanization of about 30 mines during the course of the period 1951-57 will be about Rs. 3 millions The total expenditure on development of coal and other mines will, therefore, be about Rs. 20 millions. | 835,000 tons (*b*) | 4,801,250† | 510,973 tons | 2,865,195 | 3,000,000 tons | 72,000,000 | |
| | 4·6% per year, *i.e.* 27·5% by 1957. | | 171,300 tons | 80,832,188 (at about 471/14/–per ton) | 36,700 tons | 17,317,978 | 1,470,200 tons | 66,159,000 | |
| | s and 5% per year, *i.e.* 30% by 9-50) 1957. | | 20,410 tons | 306,150 (at 15/–per ton) | 4,710 tons | 70,650 | Imports of metals will continue at slightly increased rate—present value of imports being Rs. 545 lacs. | | |
| | 5% per year, *i.e.* 30% by 1957. | | 208,567 tons | 1,772,920 (at 8/8/–per ton) | 48,131 tons | 409,214 | | | |
| | 5% per year, *i.e.* 30% by 1957. | | 38,090 tons | 1,295,060† | 8,790 tons | 302,220 | | | |
| | 5% per year *i.e.* 30% by 1957. | | 20,338 tons | 124,570† (at 6/2/–per ton) | 4,693 tons | 28,745 | | | |
| | 5% per year, *i.e.* 30% by 1957. | | 20,800 tons | 104,000† (at 5/–per ton) | 4,800 tons | 24,000 | | | |
| | 5% per year, *i.e.* 30% by 1957. | | 362,875 tons | | 84,048 tons | | | | |
| | 5% per year, *i.e.* 30% by 1957. | | 767 tons | 22,484† (at 29/5/–per ton) | 177 tons | 5,196 | | | |
| | 5% per year, *i.e.* 30% by 1957. | | 6,258 tons | 101,692† (at 16/4/–per ton) | 1,444 tons | 23,532 | | | |
| | 5% per year, *i.e.* 30% by 1957. | | 191 tons | 6,494† (at 34/–per ton) | 44 tons | 1,494 | | | |
| | 5% per year, *i.e.* 30% by 1957. | | 35,647 tons | 20,052† (at –/9/–per ton) | 8,226 tons | 4,918 | | | |
| | 5% per year, *i.e.* 30% by 1957. | | | | | | | | |
| | 5% per year, *i.e.* 30% by 1957. | | 6,818 tons | 238,635 (at 35/–per ton) | 1,573 tons | 63,151 | | | |
| *rts*— | | | Total 1,727,061 tons | Rs. 89,625,490 | Total 714,309 tons | Rs. 21,116,293 | 4,470,200 tons | 138,159,000<br>– 66,200,000<br>Say Rs. 200 millions | |

Grand Total of Development ... Rs. 30 millions.

[Estimate of foreign exchange requirements on account of cost of machinery Rs. 18 millions.]

d be 3,000 barrels

| Items. | Present Position. No. of Units East Pakistan. | Present Position. No. of Units West Pakistan. | Capacity of each Unit. | Position in other Countries (Population per Unit). | Requirements according to Sergent Report. | Target for 1957. East Pakistan. | Target for 1957. West Pakistan. | Specifications of Unit. | C Per Unit. Capital. | C Recurrin per ann |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1. *Primary Schools* | 29,634+1,159 Madrasa. | 8,819 | | | One school of 150 pupils and 5 teachers for every village: 36,630 in East Pakistan 58,343 in West Pakistan Total : 94,973 | Nil | 4,400 | One school of 200 pupils and 5 teachers. Total capacity will be increased by 892,000 students | * Rs. 8,000 | † Rs. 5,000 Rs. 25 studen |
| 2. *Middle Schools* .. | 2,675 | 2,158 | | | Half the number of primary school students should be provided middle school education facilities. Each middle school to have 75 students. Capacity at 25 per teacher. Therefore East Bengal requires 24,500. West Pakistan 10,560 middle schools. | 3,500 | 1,456 | One school of 90 students and 3 teachers with 3-room building. | Rs. 5,000 at 3 rooms each of 25 ft. by 30 ft. at Rs. 2 per sq. ft., partially kutcha building plus equipment. | Rs. 4,0 at Rs. per stud |
| 3. *High Schools* .. | 1,306 | 343 | Presumed capacity of each school is 250 students. Standard suggested is 30 students per teachers or 150 students per school. But most of the high schools have a number of sections for each class. Therefore capacity presumed at 250 each. Total : East Pakistan 326,500 West Pakistan 85,750 | | 20% of primary school population will need high school facilities. Each school to have 7 teachers. Each teacher to look after 25 students. Therefore additional requirements are: — East Pakistan : 1,300 schools (for 227,500 pupils). West Pakistan, 875 schools (additional for 153,250 pupils). | 620 schools | 400 schools | One school of 175 students and 7 teachers (25 students per teacher) with 6-room building. | Rs. 18,000 at 6 rooms each of 25 ft. by 30 ft. at Rs. 4/- per sq. ft. | Rs. 19,( at Rs per stu |
| 4. *Training Schools* .. | 81 | 27 | | | Each training school of 300 students and 20 teachers. | 16 schools (to train 10,800 teachers of M. S.). | 15 schools (to train 22,300 teachers of P.S. and 4,368 of M. S.). | One school of 300 students and 20 teachers (15 students per teacher) with 5-room building. | Rs. 15,000/- at 5 rooms each of 25 ft. by 30 ft. at Rs. 4 per sq. ft. | Rs. 6( at Rs. per stu |
| 5. *Training College* .. | 2 (1 for secondary school ; one for primary teachers training institutions.) | 2 | 100 students per institution. | | Each college of 200 students and 12 lecturers. | 4 | 2 | One college of 200 students and 12 teachers with 4 big and 4 small rooms | Rs. 50,000 at 4 rooms 30 ft. by 40 ft., and 4 rooms 10 ft. by 15 ft. at Rs. 6 per sq ft. plus hostel having 24 rooms each 10 ft. by 12 ft. | Rs. 8 at R per stu |
| 6. *University Education (Colleges).* | 50 colleges+ 1 university. | 47 colleges+ 2 universities. | | Pre-war proportion of University students to the entire population. 1. Germany 1 to 690 2. Gt. Britain 1 to 837 3. U.S. 1 to 225 4. Russia 1 to 300 5. India (in- 1 to 2,200 including Pakistan). | About 1-10th of the high school students should receive university education. Thus at 20 students per teacher (assuming the number of teachers per college to be 12) the requirements would be : — Total Reqd. / Available / Balance Reqd. East Pakistan 140 / 50 / 90 West Pakistan 55 / 47 / 8 | 32 at 25 students per teacher. (Calculated on the basis of 10 2 the number of high school students in 1957). | 8 to 25 students per teacher. | One college of 300 students and 12 teacher with 8 rooms. | Rs. 50,000 at 8 rooms each 25 ft. by 30 ft. at Rs. 6 per sq. ft. and Rs. 14,000 for equipment and hostel. | Rs. 60, Rs. 4 stud |

## EDUCATIONAL AND CULTURAL UPLIFT

| Target for 1957. | | Cost. | | | | | | Technical Man-power required. | | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Per Unit. | | Total | | | | | | |
| | | | | | East Pakistan. | | West Pakistan. | | | | |
| East Pakistan. | West Pakistan. | Specifications of Unit. | Capital. | Recurring per annum. | Capital | Recurring. | Capital | Recurring. | Per Unit. | East Pakistan. | West Pakistan. | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| Nil. | 1,400 | One school of 200 pupils and 5 teachers. Total capacity will be increased by 892,000 students | *Rs. 8,000 | †Rs. 5,000 at Rs. 25 per student. | Total.. 35,680,000 | 22,300,000 | 35,680,000 | 22,300,000 | 5 | Total.. 22,300 | 22,300 | *Each primary school building will have 4 rooms of 30 ft. by 30 ft. and a verandah. Cost of a partially kutcha building estimated at Rs. 2 per sq. ft. will come to about Rs. 7,200/- Cost of equipment may be estimated at Rs. 800/- Total: Rs. 8,000/-. |
| | | | | | (Total provision in East Pakistan will be for 2,771,370 pupils) (Total Provision in West Pakistan will be for 1,105,110 pupils) | | | | | | | |
| 3,500 | 1,456 | One school of 90 students and 3 teachers with 3-room building. | Rs. 5,000 at 3 rooms each of 25 ft. by 30 ft. at Rs. 2 per sq. ft., partially kutcha building plus equipment. | ‡Rs. 4,005/- at Rs. 45 per student | 17,500,000 Total: Capital 24,750,000/- Recurring 20,071,800/- | 14,175,000 | 7,250,000 | 5,896,800 | 3 | 10,500 Total 14,868 | 4,368 | †Recurring cost *per capita* presumed at Rs. 25/- This includes salaries at Rs. 30—1—35—3—50 per month (average Rs. 42/-) for teacher, trained for 2 years after matriculation, house rent and special allowances interest on capital outlay, etc. Teachers, salaries and allowances constitute 70% of the total recurring expenditure. |
| | | | | | (This will raise total provision to 513,125 middle students in East Pakistan) (This will raise total provision to 271,010 middle students in West Pakistan) | | | | | | | |
| 620 schools | 400 schools | One school of 175 students and 7 teachers (25 students per teacher) with 6-room building. | Rs. 18,000 at 6 rooms each of 25 ft. by 30 ft. at Rs. 4/- per sq. ft. | Rs. 19,250/- at Rs. 110 per student | 11,160,000 Total: Capital 18,360,000/- Recurring 19,635,000/- | 11,935,000 | 7,200,000 | 7,700,000 | 7 | 4,340 Total 7,140 | 2,800 | ‡This includes salaries of teachers (scale: Rs. 40—2—80) average Rs. 62 per month plus allowances, provident fund contribution, etc., for non-graduate trained teachers interest on capital expenditure, etc. |
| | | | | | (This will raise total provision for high school students to 435,000 in East Pakistan) (This will raise total provision for high school students to 155,750 in West Pakistan). | | | | | | | |
| 16 schools (to train 10,800 teachers of M. S.). | 15 schools (to train 22,300 teachers of P.S. and 4,368 of M. S.) | One school of 300 students and 20 teachers (15 students per teacher) with 5-room building. | Rs. 15,000/- at 5 rooms each of 25 ft. by 30 ft. at Rs. 4 per sq. ft. | Rs. 60,000 at Rs. 200 per student | 90,000 Total: Capital 315,000 Recurring 1,260,000 | 360,000 | 225,000 | 900,000 | 20 | 120 Total 420 | 300 | |
| 12 | 4 | 2 | One college of 200 students and 12 teachers with 4 big and 4 small rooms. | Rs. 50,000 at 4 rooms 30 ft. by 40 ft., and 4 rooms 10 ft. by 15 ft. at Rs. 6 per sq. ft. plus hostel having 24 rooms each 10 ft. by 12 ft. | Rs. 80,000 at Rs. 400 per student | 200,000 Total: Capital 300,000 Recurring 480,000 | 320,000 | 100,000 | 160,000 | 12 | 48 | 24 |
| hool 32 at 25 students per teacher | 8 to 25 students per teacher | One college of 300 students and 12 teacher with 8 rooms. | Rs. 50,000 at 8 rooms each 25 ft. by 30 ft. at Rs. 6 per sq. ft. and Rs. 14,000 for equipment and hostel. | Rs. 60,000 at Rs. 400 per student. | 1,600,000 Total: Capital 2,000,000 Recurring 2,400,000 | 1,920,000 | 400,000 | 480,000 | 12 | 384 | 96 | |
| | | | | | (This will raise capacity to 24,600 in East Pakistan) (This will raise capacity to 16,500 in West Pakistan) | | | | | | | |

(Calculated on the basis of 10.2 the number of high school students in 1957).

EDUCATION AND CULTURAL UPLIFT—*contin*

| Items. | Present Position. No. of Units East Pakistan. | Present Position. No. of Units West Pakistan. | Present Position. Capacity of each Unit. | Position in other Countries (Population per Unit). | Requirements according to Sergent Report. | Target for 1957. East Pakistan. | Target for 1957. West Pakistan. | Specifications of Unit. | Per Un Capita |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| *7. Adult Education Centres* | | | | | People of 10 to 40 years should be provided adult education facilities. They will roughly be 31,750,000. (Figure for undivided India = 127,000,000÷4.) If we assume 150 to be the capacity for each year of each unit, about 211,600 centres would be required for the completing of the work in one year. | 13,000 Each with a capacity with 5 teachers | 12,000 150 students | No capital cost—will be accommodated in the buildings of primary schools and middle schools. | |
| *8. Radio Receivers* ... | 5,107 (Till 30th June, 1950) | 387,09 | | | | 32,309 One set to each primary and middle school. | 15,437 | | At Rs. 100/- Government |
| | | | | | | Total ... 47,746 | | | |
| *9. Cost of improving existing primary schools and scales of pay of staff.* | | | | | | | | | |

## EDUCATION AND CULTURAL UPLIFT—*continued*.

| Target for 1957. | | | Per Unit. | Cost. | | | | | Technical Man-power required. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total. | | | | | | | |
| East Pakistan. | West Pakistan. | Specifications of Unit. | Capital. | Recurring per annum. | East Pakistan. | | West Pakistan. | | Per Unit | East Pakistan. | West Pakistan. | Remarks. |
| | | | | | Capital. | Recurring. | Capital. | Recurring | | | | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 13,000<br>Each with a capacity with 5 teachers | 12,000<br>150 students | No capital cost—will be accommodated in the buildings of primary schools and middle schools. | | Rs. 1200/- at Rs 8/- per student per annum | Nil | 15,600,000<br>At Rs.8/- per student<br>Total : Recurring 30,000,000 | Nil | 14,400,000 | 5 | 65,000 | 60,000 | |
| | | | | | (This will create capacity for adult education of 1,950,000 per annum in East Pakistan)<br>(This will create capacity for adult education of 1,800,000 per annum in West Pakistan) | | | | | | | |
| 32,309<br>One set to each primary and middle school. | 15,437 | At Rs. 100/- per set at Government rates. | | | 3,230,000 | 323,090 | 1,543,700 | 154,370 | | | | |
| Total ... | 47,746 | | | | Total : Capital 4,774,600<br>Recurring 477,460/- | | | | | | | |
| | | | | | 10,000,000 | 50,000,000 | — | 20,000,000 | | | | |

*Grand Total*—

| | |
|---|---|
| Capital expenditure ... | Rs.69,189,600 |
| From public funds at a basis of 50% | Rs.48,094,800 |
| Government capital expenditure ... | Rs.48,094,800 |
| Recurring expenditure ... ... | Rs.166,624,260 |
| From public funds at a basis of 50% | Rs.83,312,130 |
| Government recurring expenditure... | Rs.83,312,130 |

| Item. | Present Position. | | | | Position in other countries. | Recommendations of: (1) Bhore Committee (2) All-Pakistan Health Conference. | Targets for 1957. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Description. | No. in East Pakistan. | No. in West Pakistan. | Population served per unit. | | | Description of unit. | Number for East Pakistan. | Number for West Pakistan. | Total. | Capital per unit. | Recurring per unit p.a. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| *1. Primary (Rural) Health Unit with a Rural Dispensary.* | Rural Dispensary | 920 | 771 | E. Pakistan: about 51,550<br>W. Pakistan: 45,200 | Average pupulation served by one medical institution (hospitals and dispensaries taken together) is comparatively lesser in Pakistan provinces than in Indian provinces.<br>*1942 Figures*<br>*Rural. Urban.*<br>Sind ... 22,904 7,630<br>N.W.F.P.... 34,053 9,359<br>Punjab ... 39,925 15,188 (undivided).<br>Bombay .... 34,927 17,127<br>U.P. ...105,626 17,668<br>Madras ... 42,672 28,496<br>(Bhore Committee Report, Vol. I, page 14.) | (1) *Bhore Committee*<br>Each primary unit should serve a population of 40,000 during the first 10 years; each unit having a health centre with a dispensary and trained medical personnel. (Summary, page 11).<br>(2) *All-Pakistan Health Conference*<br>Each primary unit to ultimately serve a population of 20,000, and to have a dispensary with trained medical personnel (page 25). | One unit of two medical officers, four midwives / trained nurses, one health assistant, two pharmacists, one ward boy, with four emergency beds, residential buildings for officers and staff and a dispensary of four rooms of 12 ft. by 15 ft. | 300 | 300 | 600 | Rs. 30,000* | Rs 20,000† including salaries, 17½ per cent allowances, medicines, etc. |
| *2. Mobile Dispensaries* ... | — | — | — | — | — | — | One attached to each primary unit. | 300 | 300 | 600 | Rs. 10,000 each. | Rs. 150/- × 12 = Rs. 1,800/- |
| *3. Hospitals* .. ... | Hospitals | 436<br>Exact number of beds not known.<br>Presume on the basis of ·24 per 1,000:—<br>12,000 | 308<br>8,500<br>These are mostly to be found at provisional headquarters. | — | India. 24 beds per 1,000 (undivided).<br>U.K. ...7·14 beds per 1,000<br>U.S.A. ..10·48 beds per 1,000<br>(Bhore Report, Vol. I, page 15). | (1) *Bhore Committee*<br>One secondary unit to serve population of 600,000 (p. 14).<br>30-bed hospitals—one per 160,000 of population.<br>200-bed hospitals—one per 600,000 of population.<br>(2) *All-Pakistan Health Conference*<br>One well-equipped hospital at each district headquarters. | At present we have ·24 bed for every 1,000 of our population. We may aim at raising it to ·5 bed per 1,000. This will require additional *24,000 beds*, which may be provided as under;— | | | | | |
| | | | | | | | 30-bed hospitals ... | 57 | 33 | 90 | Rs 75,000§ per hospital. | Rs. 120,000 |
| | | | | | | | 200-bed hospitals ... | 19 | 11 | 30 | Rs. 1,500 per bed or Rs. 300,000 per hospital. | Rs. 900 per bed or Rs. 180,000. |

# HEALTH

| Cost. | | | | | | | Technical Personnel. | | | | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| curring per nit p.a. | Total capital in East Pakistan | Total recurring in East Pakistan. | Total capital in West Pakistan. | Total recurring in West Pakistan. | Grand total. Capital. | Grand total. Recurring per annum. | Category. | Per unit. | Total for East Pakistan | Total for West Pakistan. | Total. | |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 20,000† cluding a aries, per cent wances, cines, etc. | Rs. 9,000,000 | Rs. 6,000,000 | Rs. 9,000,000 | Rs. 6,000,000 | Rs. 18,000,000 | Rs. 12,000,000 | Medical Officers ... | 2 | 600 | 600 | 1,200 | * Capital cost consists of eight small one-room and verandah quarter (cost each Rs.1,000/-), two three-room houses for Medical Officers (each cost Rs.3,250/-), one dispensary of 4 by 12 by 15 and a verandah (cost Rs.5,000/-), plus cost of furniture and equipment Rs.10,500/- each. Cost of buildings, calculated at Rs.5/- per sq. ft. |
| | | | | | | | Midwives ... | 4 | 1,200 | 1,200 | 2,400 | |
| | | | | | | | Health Assistant ... | 1 | 300 | 300 | 600 | |
| | | | | | | | Pharmacist ... | 2 | 600 | 600 | 1,200 | † Includes salaries. Medical officer at Rs.250/-, Midwives, Pharmacist at Rs.50/- each, Health Assistant at Rs.60/- each, plus 17½% allowances and Rs.7,310/- p.a. on account of free supply of Medicines, insecticides and other recurring expenses. |
| s.150/- × = Rs,1,800/-‡ | Rs. 3,000,000 | Rs. 540,000 | Rs. 3,000,000 | Rs. 540,000 | Rs. 6,000,000 | Rs. 1,080,000 | Pharmacist ... | 1 | 300 | 300 | 600 | ‡ Only one Driver (at Rs.50/-) and one Pharmacist (at Rs.50/-) will be required. Repairs of the van may be provided for at Rs.50/- p.m. or 6% of the capital cost per annum. The van being attached to the dispensary will draw the Medicines from its stock. One of the two medical officers will be at touring duty to look after the Health Services on the Van. |
| | Rs. 4,275,000 | Rs. 6,840,000 | Rs. 2,475,000 | Rs 3,960,000 | Rs. 7,450,000 | Rs. 10,800,000 | Medical Officers ... | 1 | 57 | 33 | 90 | § Includes cost of residential accommodation for staff, etc. Also includes cost of ambulance at 1 for each hospital. |
| | | | | | | | Lady Doctor ... | 1 | 57 | 33 | 90 | |
| | | | | | | | Nurses ... | 4 | 228 | 132 | 360 | No provision is made for District supervisory staff recommended for a secondary Unit, District Health Officers, Civil Surgeons should for some time carry on with some additional staff, out of the existing provincial resources. |
| | | | | | | | Health Assistant ... | 1 | 57 | 33 | 90 | |
| | | | | | | | Pharmacist ... | 2 | 114 | 66 | 180 | Nurses provided for at Rs.100 each. Cost of doctor's education is Rs.1,000 p.a. or Rs.5,000 in all. (Bhore Committee Report, p. 346) |
| Rs. 120,000 | | | | | | | Midwives ... | 2 | 114 | 66 | 180 | |
| | Rs 5,700,000 | Rs 3,420,000 | Rs. 2,300,000 | Rs. 1,980,000 | Rs 9,000,000 | Rs. 5,400,000 | Medical Officers ... | 4‖ | 76 | 44 | 120 | ‖ Report recommends 15 doctors for a 200-bed Hospital and one for a 30-bed hospital. |
| | | | | | | | Lady Doctors ... | 2 | 38 | 22 | 60 | |
| Rs. 900 per bed or Rs. 180,000. | | | | Total ... | Rs. 39,750,000 | Rs. 29,280,000 | Nurses ... | 20 | 380 | 220 | 600 | |
| | | | | | | | Pharmacists ... | 4 | 76 | 44 | 120 | |
| | | | | | | | Midwives ... | 2 | 38 | 22 | 60 | |

| Item. | Present Position. | | | | Position in other countries. | Recommendations of: (1) Bhore Committee. (2) All-Pakistan Health Conference. | Targets for 1957. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Description. | No. in East Pakistan. | No in West Pakistan. | Population served per unit. | | | Description of unit. | No. for East Pakistan. | No. for West Pakistan. | Total. | Capital per unit. | Recurr per unit p. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. *Training of Technical personnel.* | Present annual training capacity. | | | | | | Number of doctors required for the above programmes:— | | | | No capital expenditure. Recurring tr cost at 1,000/- per student for 1 yea total of Rs. 5,000/- per student— Committee Report, page 346. | |
| (*a*) *Doctors* ... .. | | 300 | 300 | | India (undivided) 1 to 6,000 doctors, U.K. 1 to 1,000, U.S.A. 1 to 750. | (1) Bhore Committee, 1 doctor to 1,200, page 337, Chapter XVIII. | | 828 | 732 | 1,560 | | |
| | | 3 medical schools and one college. | 3 colleges. | | | | Present capacity being capable of extension to 100 per institution, no new institution appears to be necessary. | | | | | |
| | Existing number of doctors registered in Pakistan. | | | | | | | | | | | |
| | | 676 | 2,015 | | | | | | | | | |
| (*b*) *Nurses* ... ... | | 250 | 250 | | India (undivided) 1 to 43,000, U.K. 1 to 300. | | | 608 | 352 | 960 | No capital expenditure. Recurring t cost at Rs. 60/- p.m. per candidate. for 3 years' training is Rs. 2,16 studen Bhore Committee page 349. | |
| | | (5 centres) | (5 centres) | | | | | | | | | |
| | Existing number of nurses registered in Pakistan. | | | | | | | | | | | |
| | | 434 | 508 | | | | | | | | | |
| (*c*) *Midwives* ... ... | | | | | India (undivided) 1 to 60,000, U.K. 1 to 618. | (1) Bhore Committee, 1 midwife for every 100 births, page 66, Summary. | | 1,352 | 1,288 | 2,640 | No capital expenditure. Trainin (recurring expenditure) as in Nurses, i.e. Rs. 60/- p.m. per stu 1 year's course. | |
| (*d*) *Health Assistants* .. | | | | | | | | 357 | 333 | 690 | No capital expenditure. Recurring ture is at Rs. 60/- p.m. per stu 1 years' course. | |
| (*e*) *Pharmacists* . | | | | | India (undivided) 1 to 4,000,000. U.K. 1 pharmacist to 3 doctors. | | | 1,090 | 1,010 | 2,100 | No capital expenditure. Recurring ture is at 60/- per month per stu 2 years' course. | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | Grand Total | |

## HEALTH—*continued.*

| Targets for 1957. | | | | Cost. | | | | | | | | Technical Personnel. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Description of unit. | No. for East Pakistan. | No. for West Pakistan. | Total. | Capital per unit. | Recurring per unit p.a. | Total capital in East Pakistan. | Total recurring in East Pakistan. | Total Capital in West Pakistan. | Total recurring in West Pakistan. | Grand total. Capital | Grand total. Recurring per annum. | Category. | Per unit. | Total for East Pakistan. | Total We Paki |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | |
| Number of doctors required for the above programmes:— | | | | No capital expenditure. Recurring training cost at 1,000/- per student for 1 year or a total of Rs. 5,000/- per student—Bhore Committee Report, page 346. | | | | | | | | | | | |
| or ter | 828 | 732 | 1,560 | | | | | E. Pakistan Rs. 828,000 p. a. | W. Pakistan Rs. 732,000 p.a. | Total Rs. 1,560,000 p.a. | | | | | |
| Present capacity being capable of extension to 100 per institution, no new institution appears to be necessary. | | | | | | | | | | | | | | | |
| | 608 | 352 | 960 | No capital expenditure. Recurring training cost at Rs. 60/- p.m. per candidate Total for 3 years' training is Rs. 2,160/- per student—Bhore Committee Report, page 349. | | | | Rs. 737,760 p.a. | Rs. 253,440 p.a. | Rs 691 200 p.a. | | | | | |
| mid-irths, | 1,352 | 1,288 | 2,640 | No capital expenditure. Training cost (recurring expenditure) as in case of Nurses, i.e. Rs. 60/- p.m. per student for 1 year's course. | | | | Rs. 973,440 p.a. | Rs. 927,360 p.a. | Rs. 1,900,800 p.a. | | | | | |
| | 357 | 333 | 690 | No capital expenditure. Recurring expenditure is at Rs. 60/- p.m. per student for 1 years' course. | | | | Rs. 257,040 p.a. | Rs. 239,760 p.a. | Rs. 496,800 p.a. | | | | | |
| | 1,090 | 1,010 | 2,100 | No capital expenditure. Recurring expenditure is at 60/- per month per student for 2 years' course. | | | | Rs. 784,800 p.a. | Rs. 727,200 p.a. | Rs. 1,512,000 p.a. | | | | | |

| | Capital | Recurring p.a. |
|---|---|---|
| Grand Total ... ... | Rs. 39,750,000 | Rs. 35,440,800 |

—*continued.*

| Cost. | | | | | | Technical Personnel. | | | | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total capital in East Pakistan. | Total recurring in East Pakistan. | Total Capital in West Pakistan. | Total recurring in West Pakistan. | Grand total. Capital | Grand total. Recurring per annum. | Category. | Per unit | Total for East Pakistan. | Total for West Pakistan. | Total. | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| | E. Pakistan Rs. 828,000 p. a. | W. Pakistan Rs. 732,000 p.a. | Total Rs. 1,560,000 p.a. | | | | | | | | |
| | Rs. 737,760 p.a. | Rs. 253,440 p.a. | Rs 691 200 p.a. | | | | | | | | |
| | Rs. 973,440 p.a. | Rs. 927,360 p.a. | Rs. 1,900,800 p.a. | | | | | | | | |
| | Rs. 257,040 p.a. | Rs. 239,760 p.a. | Rs. 496,800 p.a. | | | | | | | | |
| | Rs. 784,800 p.a. | Rs. 727,200 p.a. | Rs. 1,512,000 p.a. | | | | | | | | |
| | Capital | Recurring p.a. | | | | | | | | | |
| | Rs. 39,750,000 | Rs. 35,440,800 | | | | | | | | | |

*Provincial Governments Recurring Expenditure on Public Health and Medical Relief in 1944—45.*

| | Per Capita | Percentage of total provincial expenditure. |
|---|---|---|
| Punjab (undivided) ... ... | As. 6.1 | 5.1 per cent. |
| N.W.F.P. .. ... ... | As. 7.7 | 5 „ |
| Sind ... ... ... ... | As. 8.2 | 2.5 „ |
| Bengal (undivided) ... ... | As. 7.1 | 5.7 „ |